INSPIRED BY EFFICIENCY

User manual

Interroll Cart Pushback

PF 2430

Version 1.2 (Jan. 2015)
EN - Translated from French

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Downloadable manual available at the following address:
http://www.interroll.com/en/downloads/dynamic_storage/ds_user_manual/

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About this manual

Remarks concerning the use of this manual

Manual contents

This manual provides remarks and important information about the various operating phases of the Cart Pushback:

- Transport, assembly and start-up
- Safe operation, maintenance, troubleshooting, waste disposal

Validity of this manual

This manual describes the Cart Pushback as it is delivered by Interroll.

In the event of an installation involving non-standard containers or contents, specific recommendations, specific operations modes and all contractual documents are provided along with this manual.

This manual is an integral part of the product

- To ensure safe, reliable operation and to benefit from the guarantee, before using the Cart Pushback you must follow the recommendations in this manual and the data in the order confirmation.
- Keep this manual near the Cart Pushback.
- Give this manual to any operator or subsequent user of the Cart Pushback.
- Interroll shall not be held responsible for damages or failures which may result from ignoring the recommendations in this manual.
- Contact Interroll Customer Service if you have any questions after reading this manual. The last page lists the details of the person to contact in your country.

Warnings in this document

The warnings in this document concern dangers which may arise while using the Cart Pushback. For relevant warnings see *"Safety", page 6*, and the warnings at the beginning of each chapter.

There are three categories of danger, indicated by the following key words:

- Danger
- Warning
- Caution

Key word	Meaning
Danger	Indicates a hazardous situation, which, if not avoided, may result in death or serious injury.
Warning	Indicates a hazardous situation, which, if not avoided, may result in death or serious injury.
Caution	Indicates a hazardous situation, which, if not avoided, may result in a minor or moderate injury.

Structure of warnings

Danger

Nature and source of hazard

Possible consequences of non-observance.

► Information about how to avoid the hazard.

Notice

This symbol identifies possible material damage.

► Information about how to avoid damage.

Additional symbols

This symbol displays safety instructions.

This symbol marks useful and important information.

► This symbol marks the steps that have to be carried out.

Safety

General safety instructions

The Cart Pushback is designed according to the technical state of the art. However, certain risks may still arise.

- Risks of physical injury or death to the user or bystanders
- Damage caused to the Cart Pushback or to other material

Disregarding the warnings in this manual may lead to serious injury or even death.

► Always read this manual carefully and make sure you follow the safety instructions.

► Only qualified and specially trained personnel may work with the Cart Pushback .

► Always keep this manual at hand and make it accessible to all personnel.

► Always comply with the relevant national safety regulations in your company.

► Contact Interroll Customer Service if you have any questions after reading this manual. The last page lists the details of the person to contact in your country.

Intended use

The Cart Pushback is reserved exclusively for industrial use in suitable environments. The installed lanes are intended for dynamic (gravity-based) storage only of foreseen and previously approved isolated loads. They are reserved exclusively for storing referenced or standardised containers.

Any other use is considered inappropriate.

The installation configurations must be applied. They are defined in the order confirmation and in this manual. All other changes concerning the components and their location in the lane are not authorised.

To load and unload containers in the lanes, a suitable forklift must be used. This forklift must meet all the following functions:

- inclinable upright or forks
- upright height adapted to the rack height
- sufficient power to push and restrain the containers in the lane

Comply with the maximum loads recommended by the rack manufacturer and indicated on the load plate. The content must not exceed the maximum load specified by the container supplier or by the standards.

Unintended use

The Cart Pushback may not be used to transport people, bulk products, or small parts.

Applications which do not comply with the planned use of the Cart Pushback require prior written approval from Interroll.

Qualified personnel

Qualified personnel are persons who read and understand this manual, and taking national regulations into account, can completely execute incidental work.

Only qualified and trained personnel may work with the Cart Pushback taking the following into account :

- The relevant manuals and diagrams
- The warnings and safety instructions in this manual
- The system specific regulations and requirements, *see "Assembly and installation", page 12*
- National or local regulations and requirements for safety and accident prevention

Risks

The following list informs you about the various types of dangers or damage that may occur when installing or working with the Cart Pushback.

Personal injury

- ► The equipment may be used by qualified personnel only, in any of its operations modes.
- ► Comply with the technical data provided in the order confirmation. The containers must be sufficiently rigid to withstand the load. The size ratio between the base and the height must ensure proper stability of the container.
- ► Follow the assembly and operating instructions.
- ► Use suitable forklifts only.
- ► Check the installation and perform maintenance on a regular basis.
- ► Make sure that no-one is near to or beneath the loads. Take all necessary precautions to prevent the presence of personnel within the lanes Pushback.
- ► Make sure that the loading / unloading rows include sufficient lighting so as not to hinder handling operations.
- ► Do not walk on the carts or tracks of the Cart Pushback.

Rotating parts

- ► Wear suitable work clothes and Personal Protection Equipment (safety shoes, gloves, etc.)
- ► Tie up long hair or wear a cap.
- ► Remove jewellery such as necklaces or bracelets.
- ► Do not walk on the tracks or carts. Only authorized maintenance staff can enter the lanes.

Product information

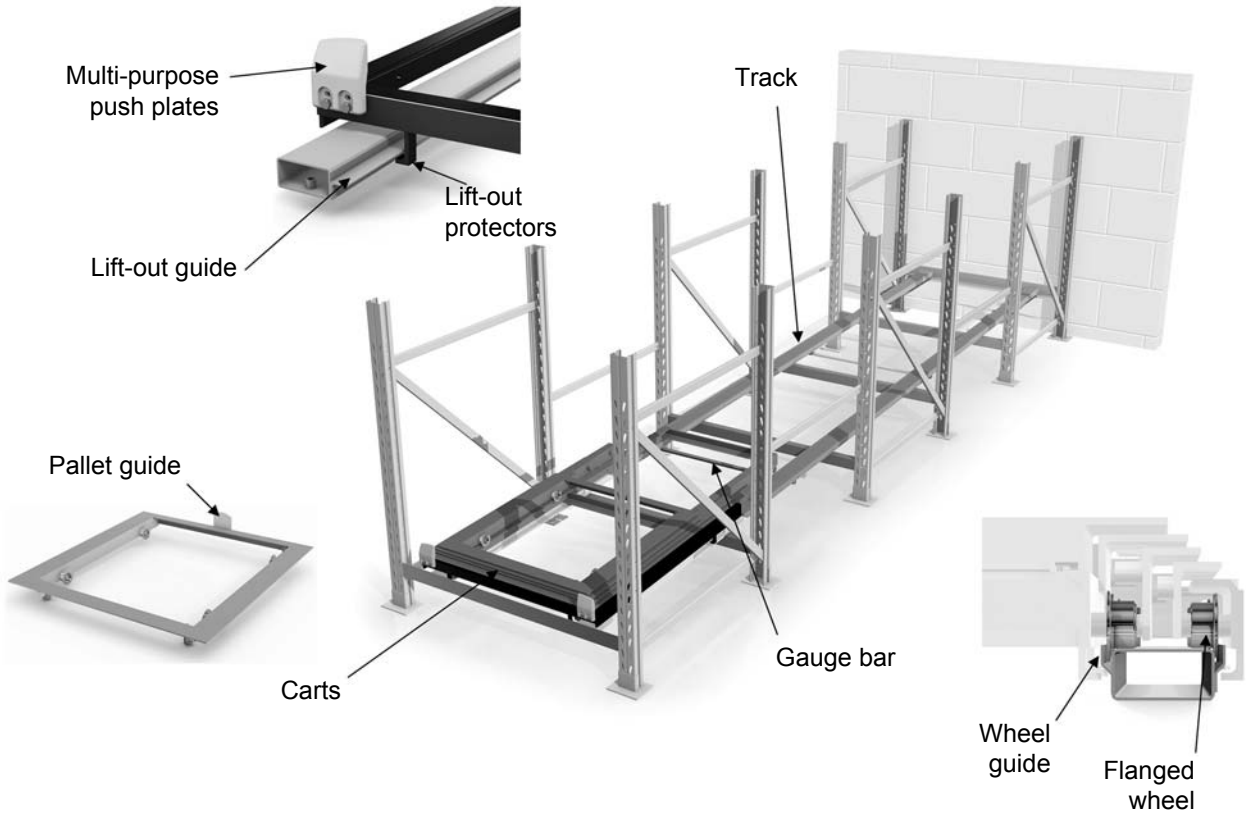
Product description

The Cart Pushback is used to store heavy loads in LIFO configuration. The last pallet loaded into the lane is the first pallet available in the front. These heavy loads may be pallets, steel or plastic containers or other types of rigid containers. They must all the fitted with runners perpendicular to the aisle.

The containers are stored on movable carts.

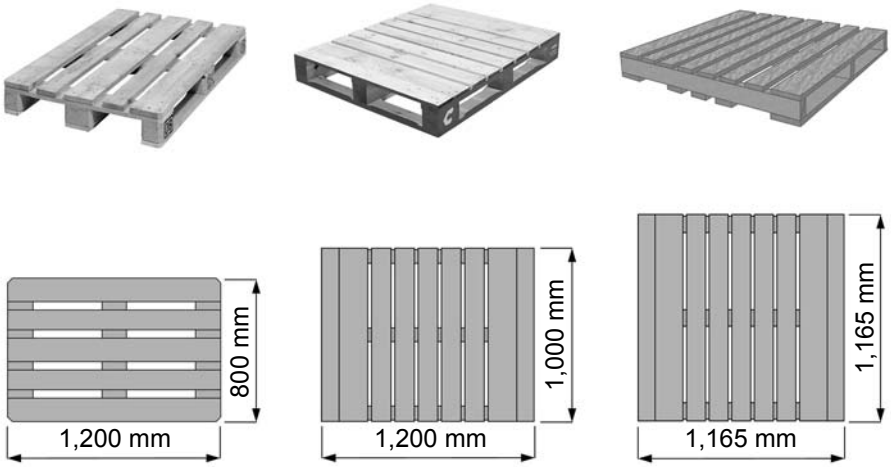
The Cart Pushback is made up of movable carts and tracks attached to the rack.

Components



Possible configurations

The Cart Pushback is used to store different types of pallets or containers.
The standard dimensions offered by Interroll are shown below. Please refer to the drawings supplied with the order for specific containers.



Technical characteristics of the Cart Pushback

Gravity-based system

Load	150 to 1,400 kg per pallet place
Regulated speed	0.1 to 0.3 m/sec.
Slope	Specified in the order confirmation Generally recommended slope: 3%
Compatible pallets	• Euro pallets (1,200 x 800 mm) • Industrial pallets (1,200 x 1,000 mm) • GKN Chep (1,200 x 1,000 mm) • Euro pallets (1,165 x 1,165 mm) • Other containers: please contact Interroll.
Forklifts	Specified in the order confirmation

Atmospheric conditions

Ambient temperature	during operation	-28 °C to +40 °C
	during assembly	-28 °C to +40 °C
	for transportation and storage	-28 °C to +80 °C
Humidity		Up to max. 90%, without condensation
Environment	The Cart Pushback is not suitable for use in an environment presenting the following risks: • Oxidisation (either atmospheric or via chemical attacks) • Projection • Decomposition • Vibration • Explosion • Radioactive radiation • Electromagnetic radiation Exceptions are possible: please contact Interroll.	

Load contents

The contents of the loads and their containers must not:

- Oxidise
- Corrode
- Decompose
- Block the lane's components
- Pollute steel components
- Prevent correct operation of any mechanisms

The Cart Pushback must not be used in direct contact with food products.

Transportation and storage

Transportation

► Only qualified and authorised personnel should transport the equipment.
► Use slings or appropriate lifting equipment to transport the equipment.
► If the content is unstable, unload the container unit by unit and not by truck.

Storage

► Store equipment indoors.
► Never store the equipment outdoors, or in a dusty or humid environment.
► Respect the ambient conditions.
► Do not stack additional loads on the Cart Pushback cart and track pallets.

Assembly and installation

Warnings concerning assembly

Warning

Risk of injury in case of incorrect assembly

- ► As the Cart Pushback is the subsystem of the overall installation, you need to perform a risk analysis of the entire installation.
- ► Identify the protective measures required concerning risks related to the local conditions at the site and to usage.
- ► Define a safety zone in the working area.
- ► Secure the zone and set up proper signalling and appropriate protection.
- ► For assembling tracks and carts on the rack, refer to the safety rules concerning working at height.
- ► Never lean or walk on carts installed on the Cart Pushback tracks unless the carts are securely strapped in place.
- ► During assembly, wear appropriate Personal Protective Equipment (gloves, safety shoes, safety harness, helmet, etc.).

Assembly rules

The Pushback lanes are subsystems of the overall installation. They are delivered in compliance with the technical data indicated in the order confirmation.
The supply of Pushback lanes comprises tracks and movable carts. These components must be assembled and installed on a rack.

Any changes to the components and their position in the lane eliminates Interroll's responsibility, and will be considered as unintended use of the Cart Pushback.

Make sure that the available height between two levels complies with the specifications of the rack.

Qualified personnel

The assembly and installation must be carried out by qualified personnel in compliance with the instructions concerning assembly and installation, and with safety instructions,
The manager of the team responsible for assembling the lanes must be technically competent and trained concerning the following:

- The products and their use
- The dangers inherent in the assembly of heavy or cumbersome components in high places.
- The risks related to incorrect assembly
- Uncontrolled speeds or propulsion of loads stored on the lane may may cause serious accidents.
- The adjustments required for correct operation of the lanes.

Interroll can provide dedicated training on the Cart Pushback. We will send a quote on request.

General rules

- ► Check the stability of the tracks and carts on the containers before cutting the straps.
- ► Cut the retaining straps on the pallet. Do not cut the plastic straps linking the carts to one another before they are installed in the rack.
- ► Once the straps have been cut, do not move the container.
- ► Make sure you do not damage the tracks and carts during assembly.
- ► Recommended tightening torque of the tracks on the beams: 89 Nm.
- ► Clean the work site at the end of the installation. Do not leave any components or tools in the installation area. Make sure that the plastic straps linking the carts to one another are removed.
- ► Test the lanes one by one as they are assembled.

Adjusting the slope:

- ► The beams supplied automatically adjust the slope of the Cart Pushback tracks to 3%.
- ► Make sure that each type of beam is installed in the right place in accordance with the rack drawings.

Assembly

The Cart Pushback can be assembled using two methods. Choose the solution that is best suited to the applicable safety rules. Certain companies may require scissor lifts to be used for work at heights.

General rules

► Start by determining the height settings on the ground.

The rack must be attached to the ground such that the complete system is rigid, before installing the tracks and carts of the Cart Pushback.

► When assembling the frames, check that the frame uprights are vertical and that the beams are horizontal. A tolerance of ±0.1% is permitted.

► Interroll shall not be held liable for any malfunctions if the rack is not properly installed.

► If the Cart Pushback is interfaced with any other systems, use the same point of reference as the other systems when positioning the frames.

► Always meet the specifications of the rack (height between two levels).

► Never handle pallets whose straps have already been cut (risk of falling).

Method 1: assembly with a scissor lift

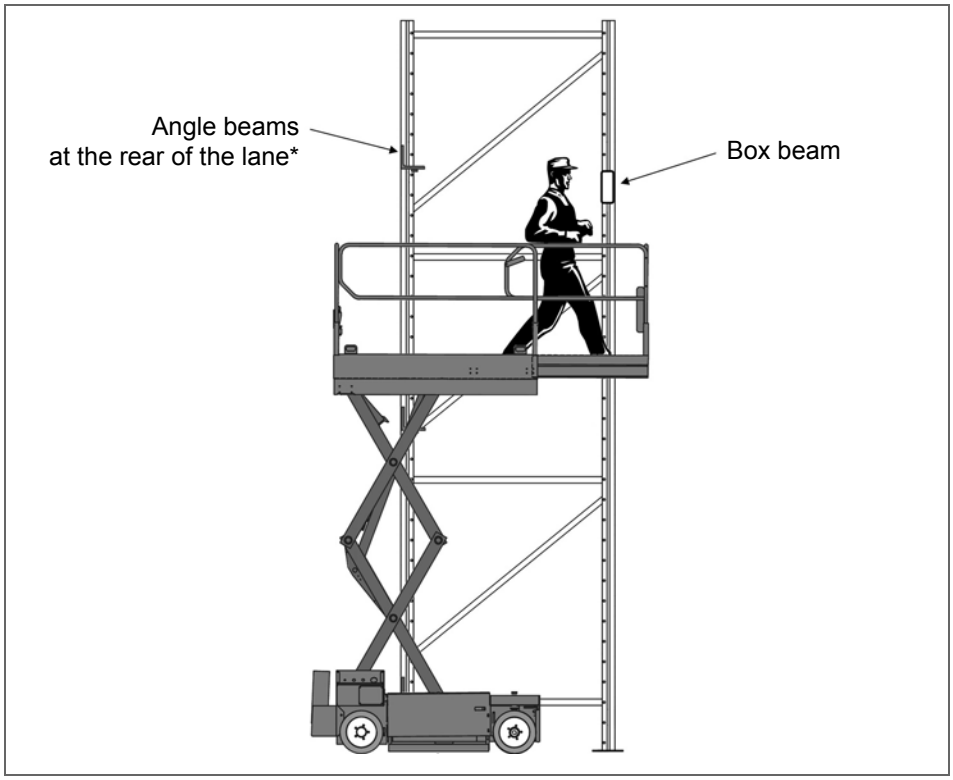
Step 1 - Rack

► Use a scissor lift measuring less than 1 meter in width to assemble the rack. The scissor lift must be capable of reaching the highest lane.

► Start by securing the frames to the ground at the rear of the lane. Start by assembling the highest lane and work downwards.

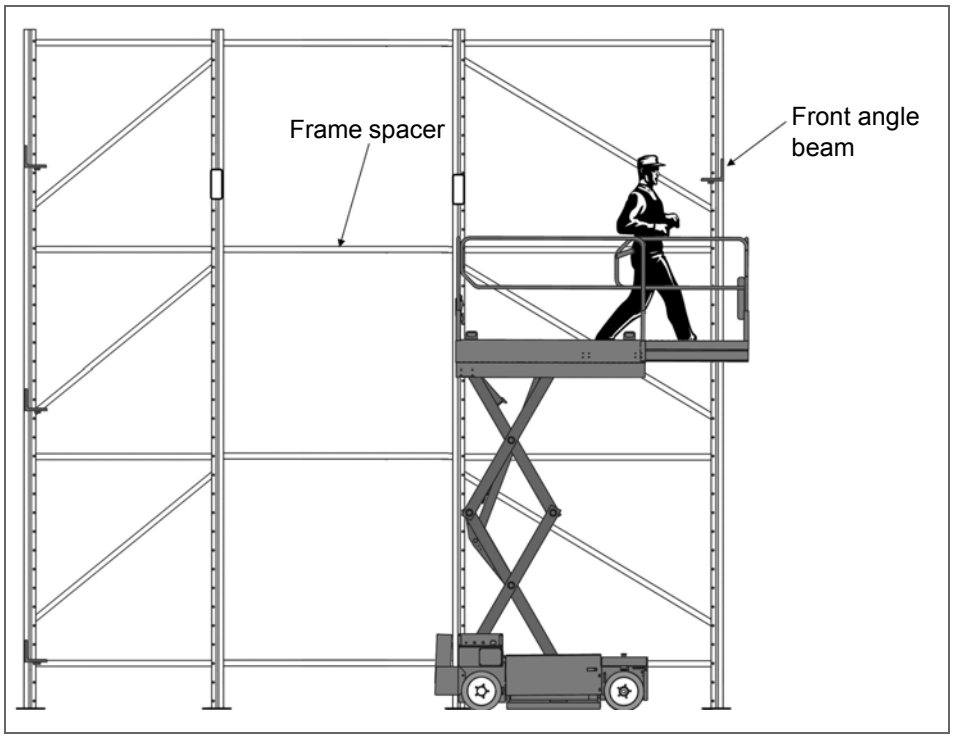
► Before installing the beams of the lower levels, completely finish the assembly of the Cart Pushback on the next higher level.

► Attach the angle beams at the rear of the lane on every level in order to secure the rack.



*Optional box beam

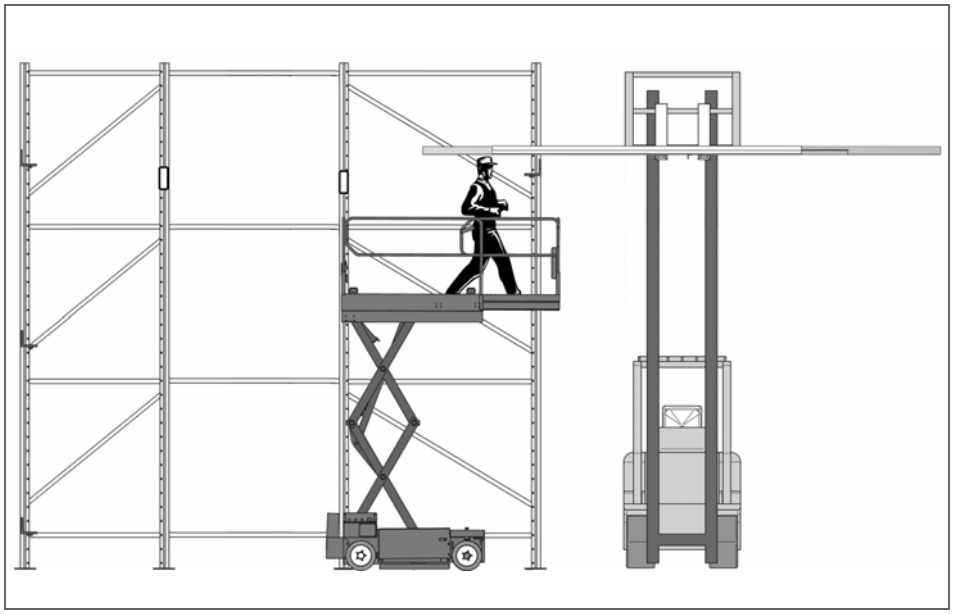
► Continue to assemble the frames.



Step 2 - Assembling the tracks

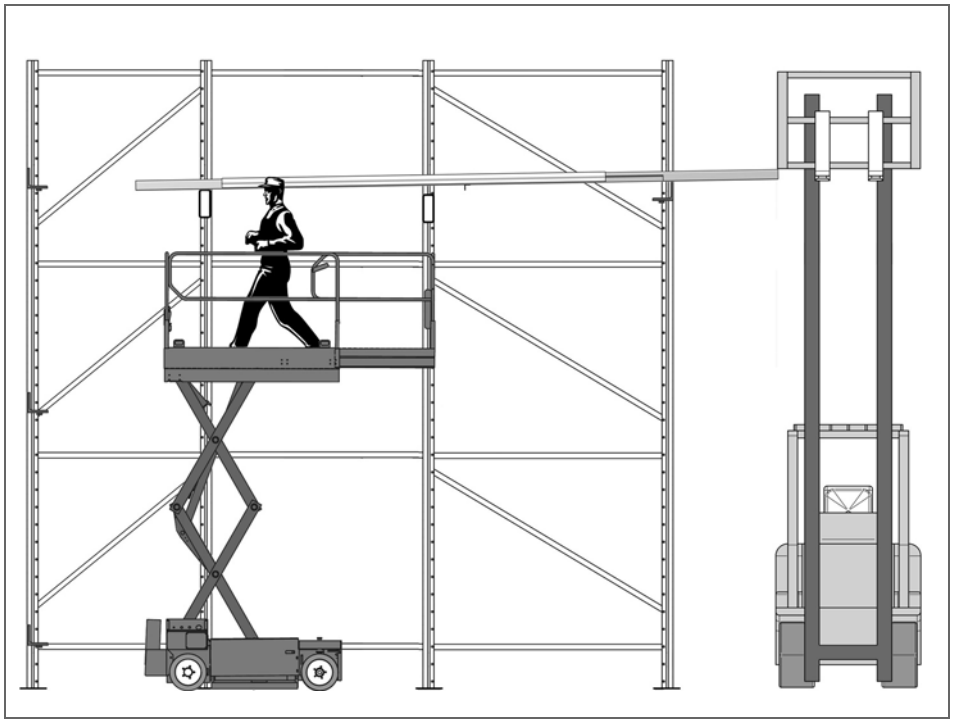
◆ Arrangement of the tracks

► Start by assembling tracks in the highest lane and work downwards. Use a fork-lift to lift the tracks.



◆ Inserting the tracks

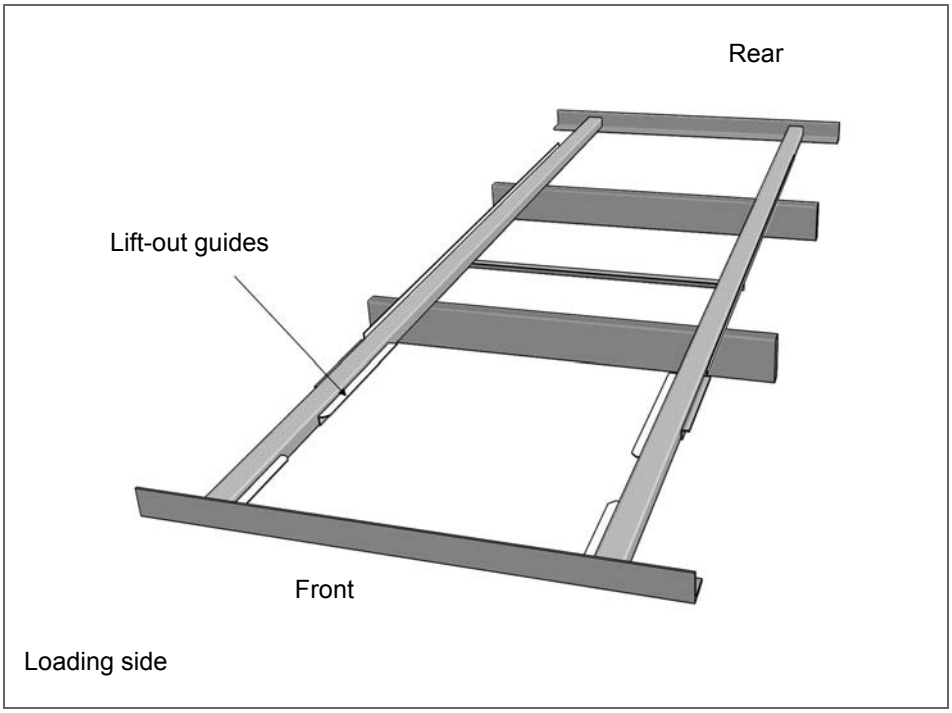
► Pull the tracks on the beams.



◆ Adjusting the position of the tracks

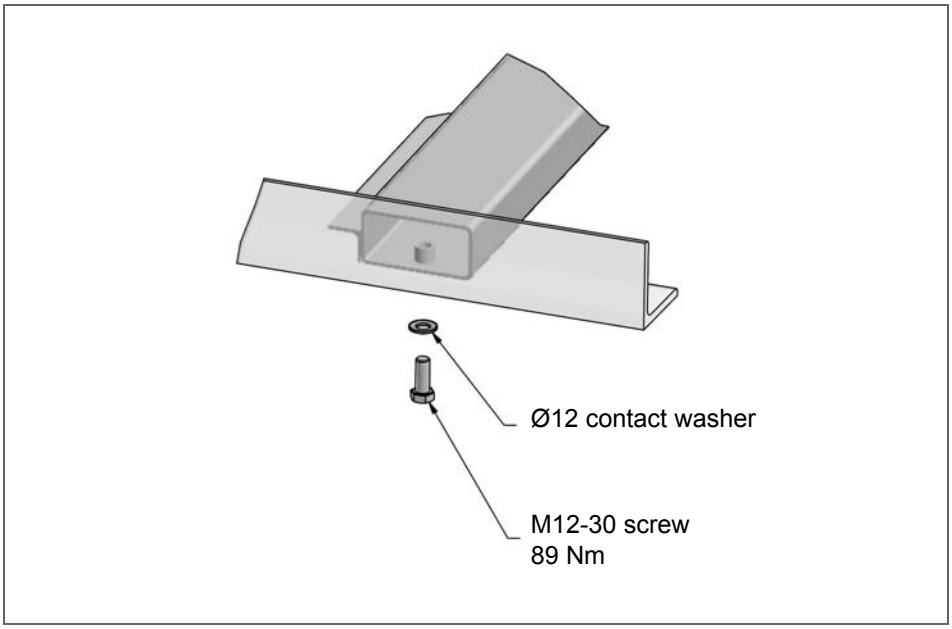
► Position two tracks in each lane. One on the left and one on the right. Check that the lift-out guides face inwards. The centre-to-centre distance between the tracks is shown on the assembly plan.

► Check that the tracks rest on all the beams.



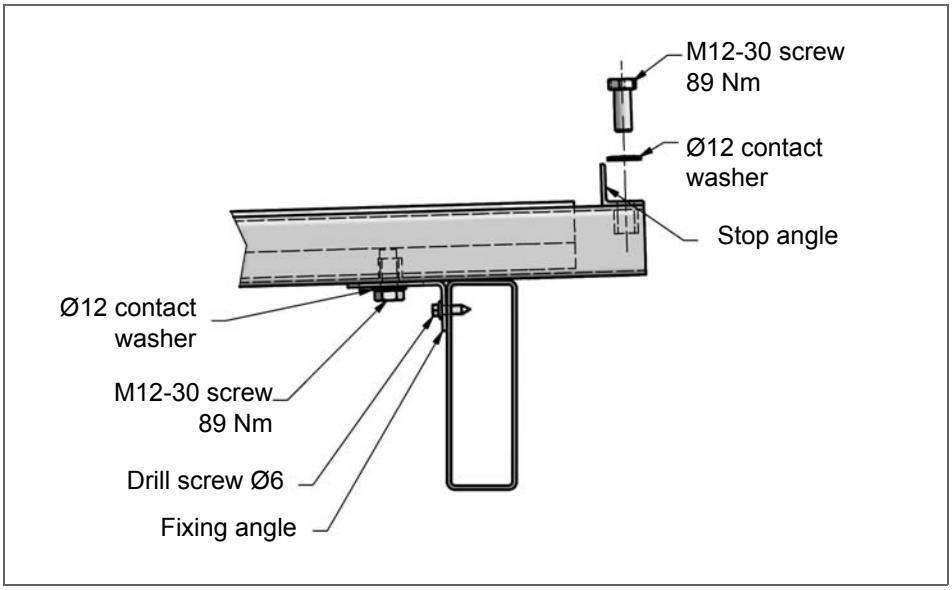
◆ Securing the tracks

► Use the inserts to attach each end of the tracks to the angle beams. The holes in the angle beams correspond to the gap required between the tracks. Check that the centre-to-centre distance between the tracks matches the distance shown on the assembly plan.



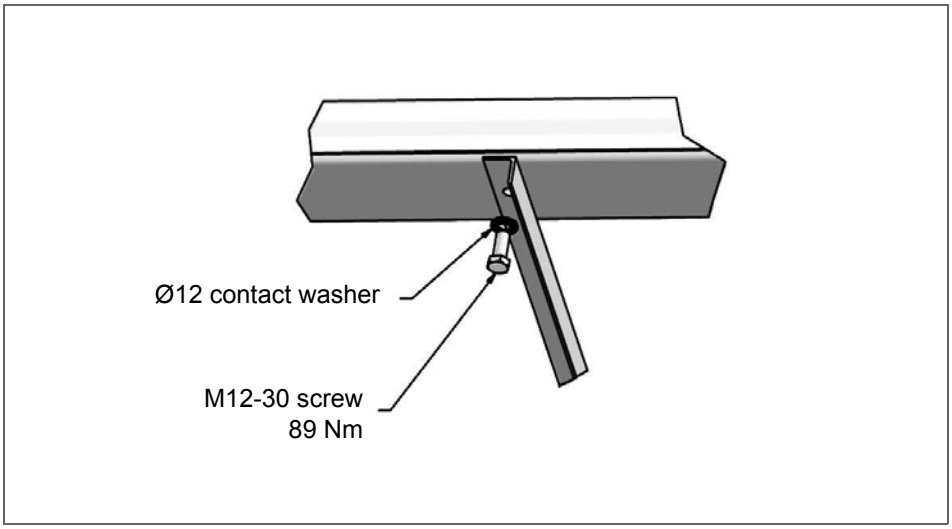
◆ Option - box beams

► If box beams are installed at the rear of the lane, remember to assemble the stop angle. Use the fixing angles to attach the tracks to the box beams.



► Evenly position the track gauge bar(s) along the lane. The gauge bar must not come into contact with the beams. Use the most suitable holes.

► Check that the centre-to-centre distance matches the distance on the drawing supplied with the lane.



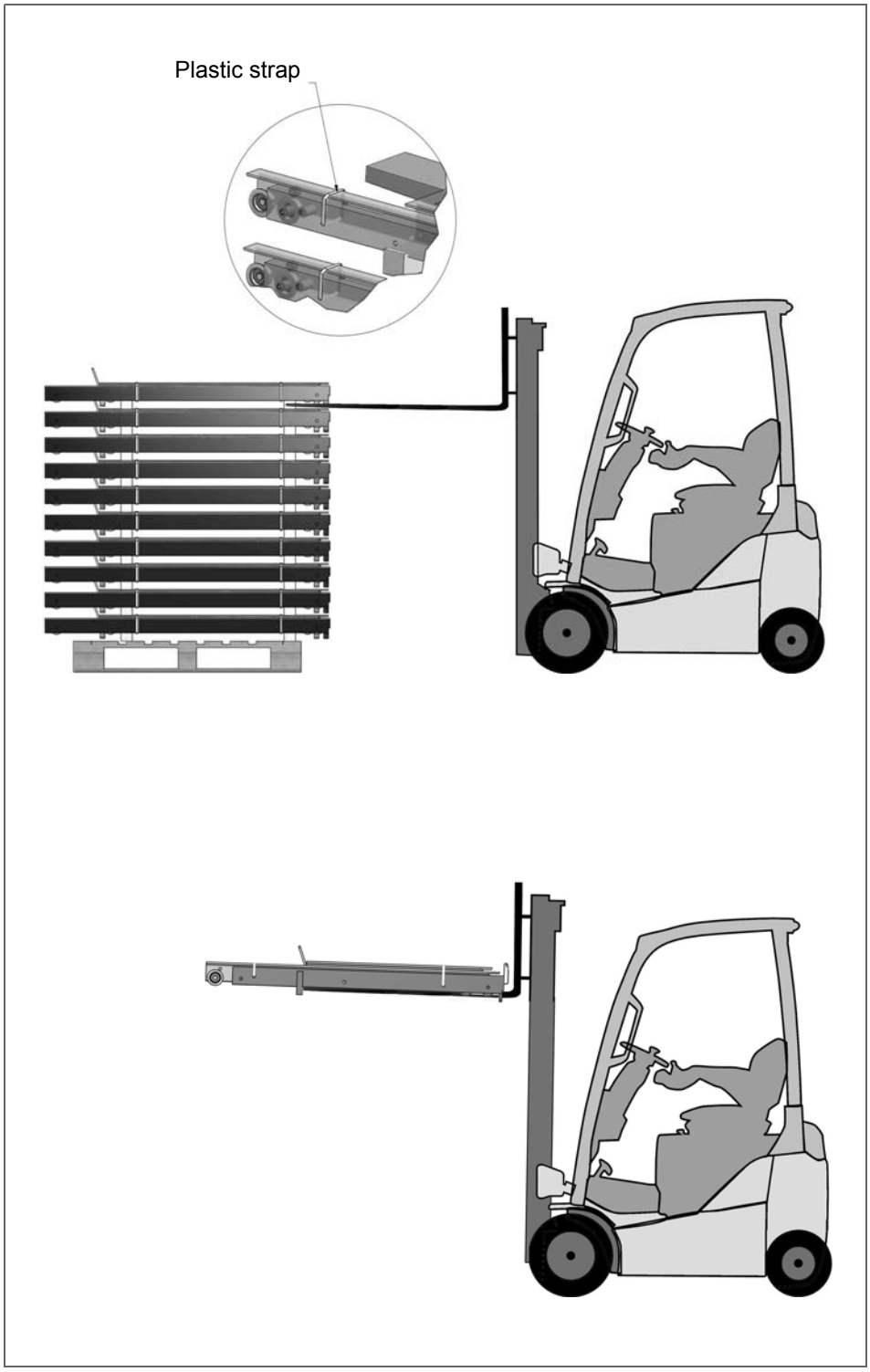
► Then secure the gauge bar(s) in the same way.

Step 3 - Assembling the carts

◆ Handling the carts

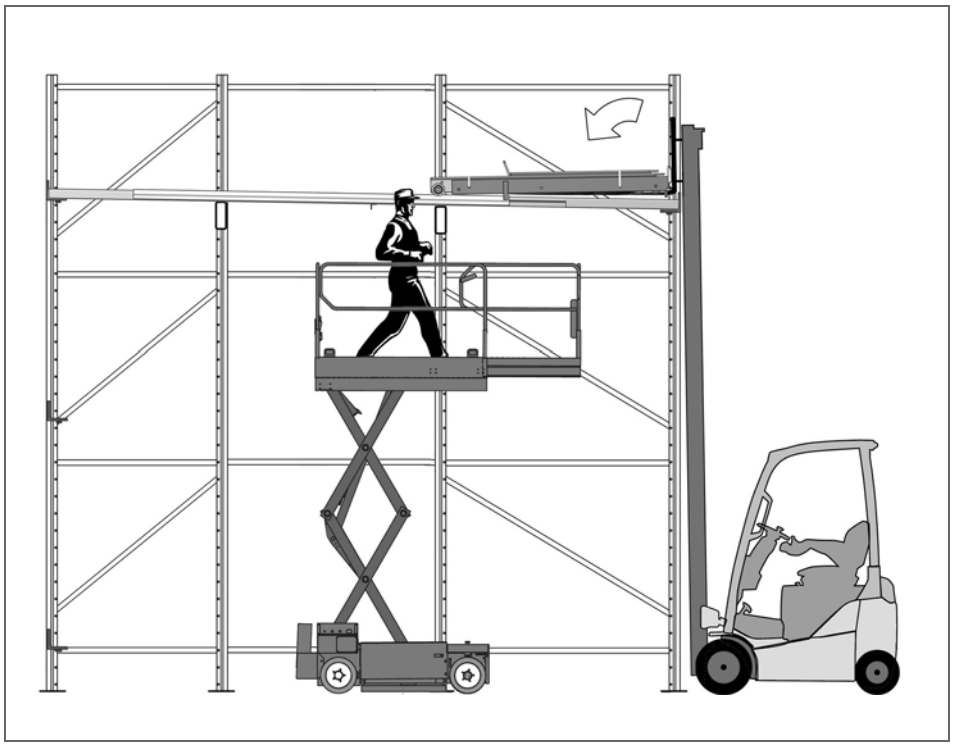
► Take a set of carts using the forks of the forklift.

Check that the Pushback carts are properly secured by the plastic straps before handling them. The forks of the forklift must be suited to the length of the Push-back carts.

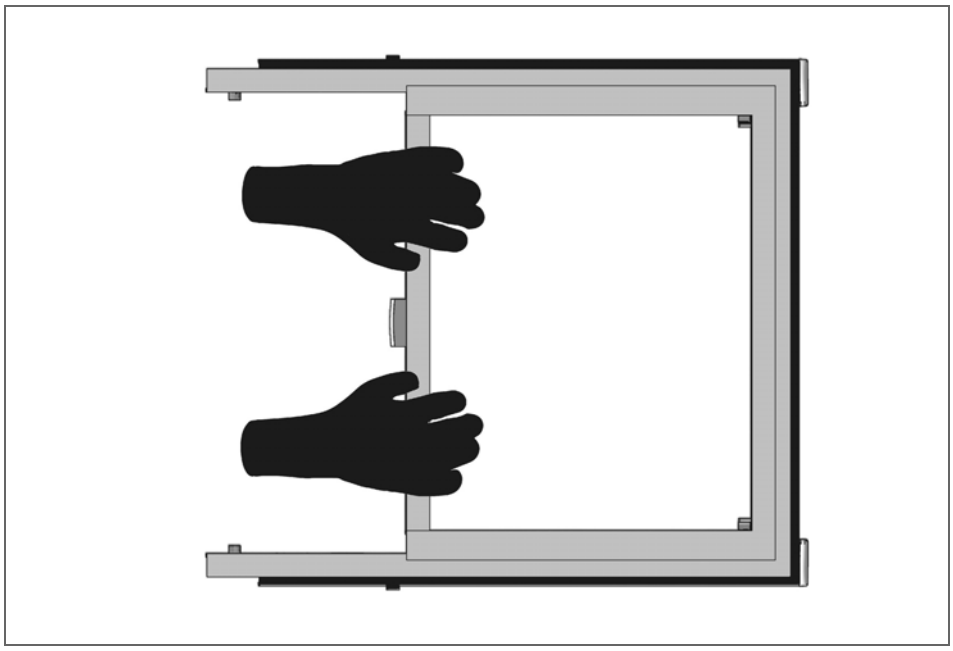


Start by assembling carts in the highest lane and work downwards.

► Deposit the set of Pushback carts on the tracks.

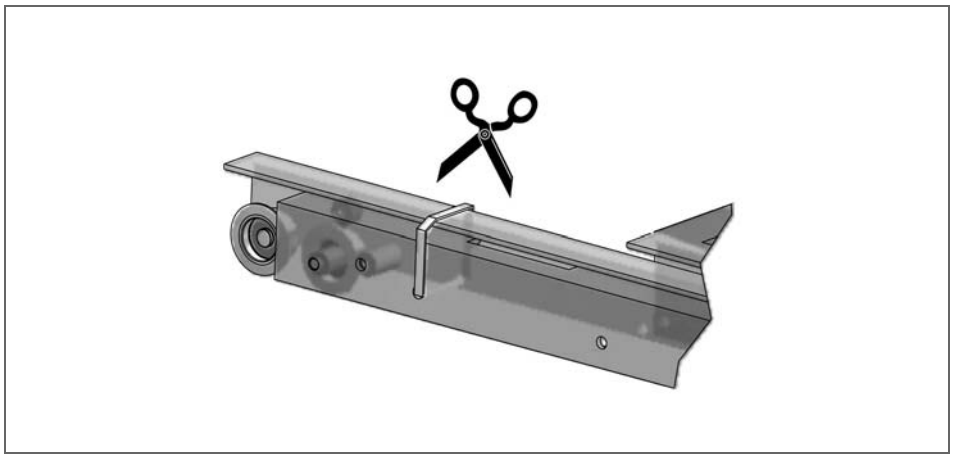


► The person in the scissor lift holds the set of carts by the rear cross-tie of the upper cart, then adjusts the position of the Pushback carts such that the wheel flanges are inserted in the guides.

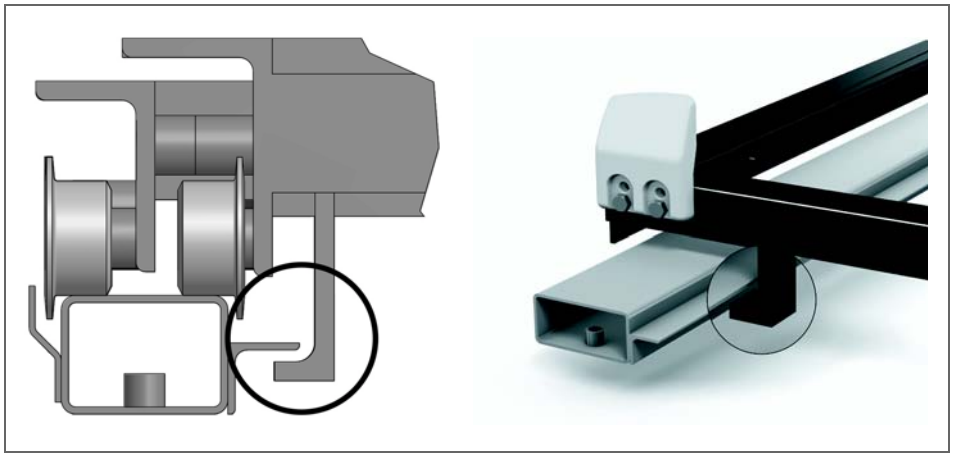


There is a risk of hands being trapped between the carts when installing.

► Then cut and remove the plastic straps securing the carts.



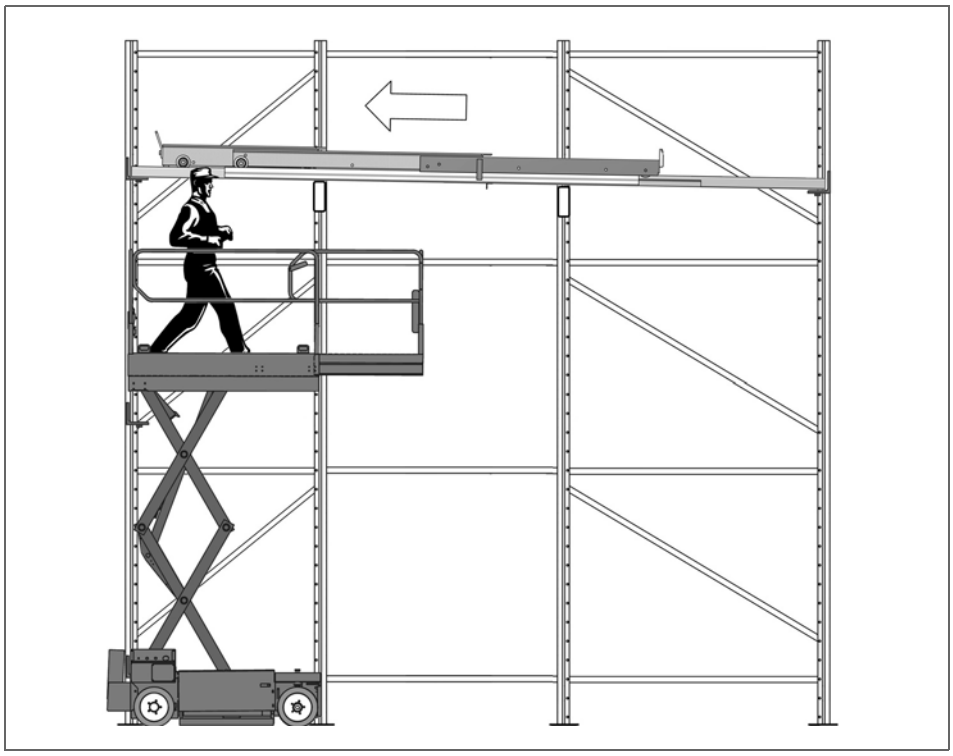
► Lower the carts towards the front of the lane. Check that the lift-out protectors of the carts pass under the lift-out guides of the tracks.



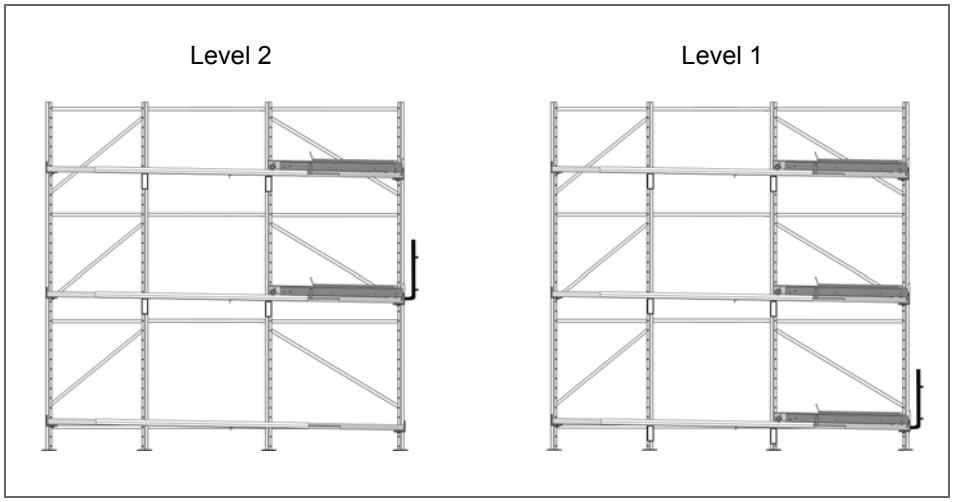
► Pull the top cart towards the rear of the lane. Since the carts are linked to one another, the second, third (and so on) carts should follow the top cart.

► Once the carts are fully stretched out, release them and they should return to their position at the front.

Repeat this operation for each lane.



► Repeat the procedure for the lower levels, proceeding from the top lane downwards.

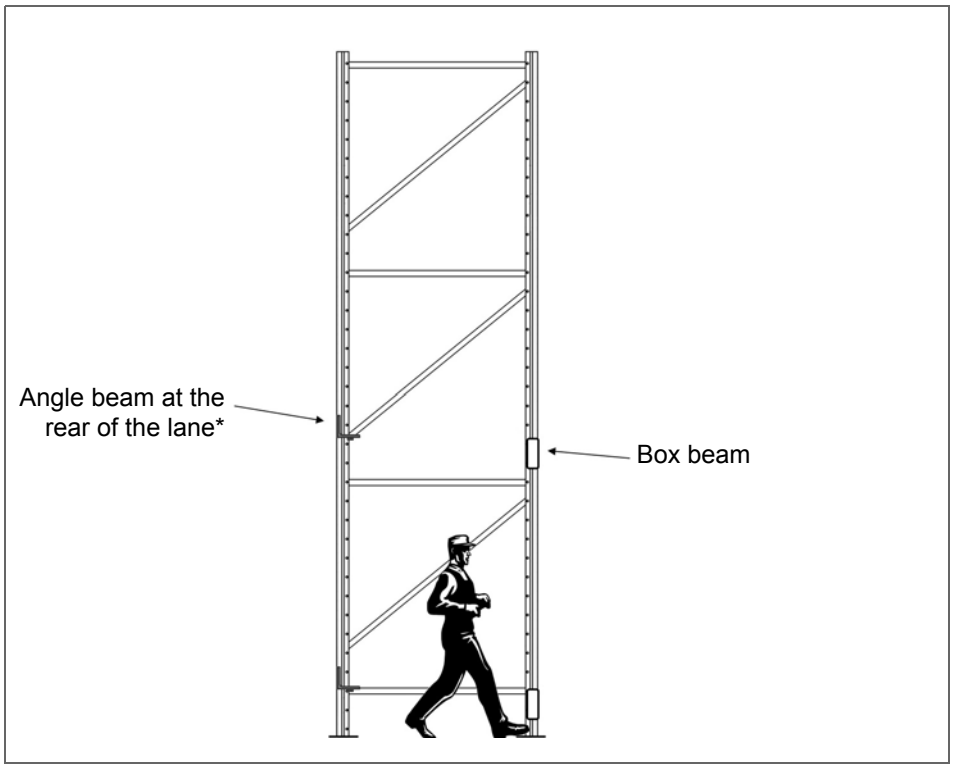


► Once the bay is completed, proceed with the assembly of the adjacent bay, and so on.

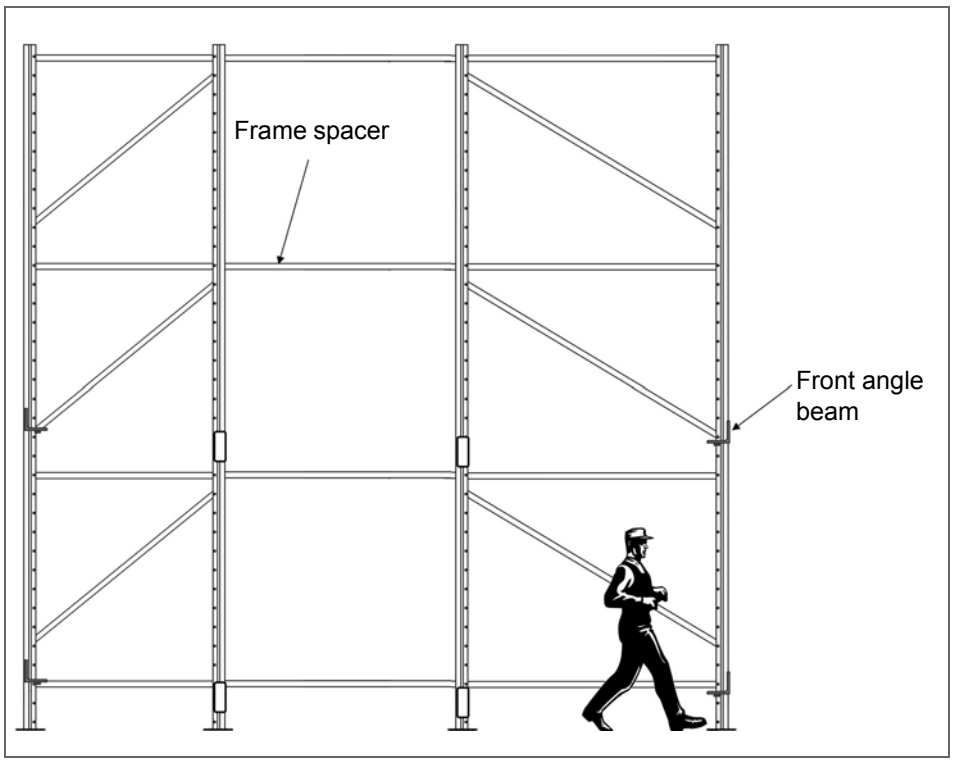
Method 2: assembly without a scissor lift

Step 1 - Rack

- ► Start by securing the frames to the ground at the rear of the lane. Start by assembling the lowest lane and work upwards.
- ► Secure the beams of the two lowest levels to stabilise the structure.



*Optional box beam

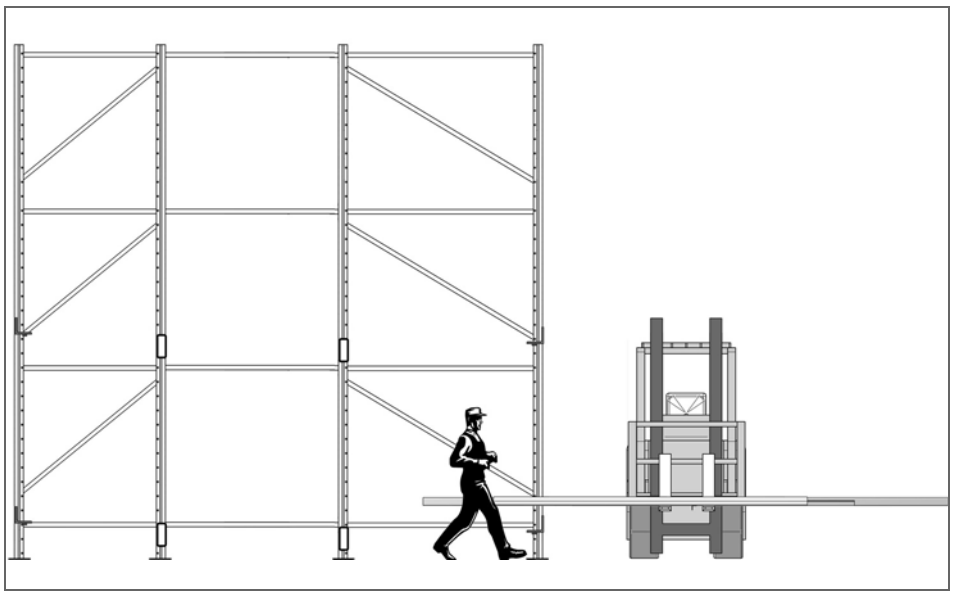


Step 2 - Assembling the tracks

◆ Arrangement of the tracks

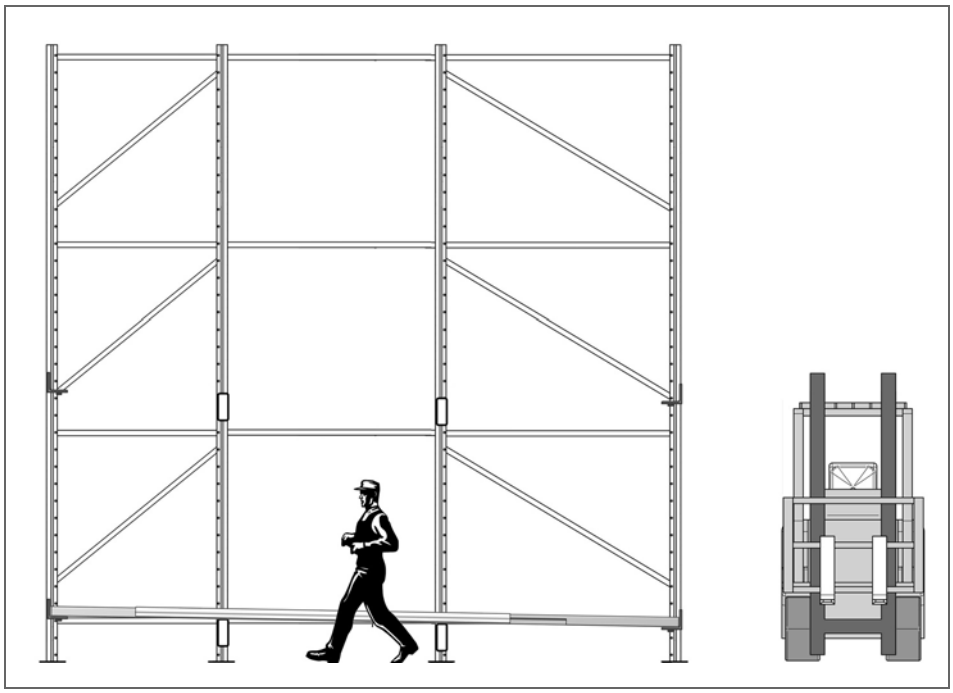
Start by assembling tracks in the lowest lane and work upwards.

► Use a forklift to position the tracks.



◆ Inserting the tracks

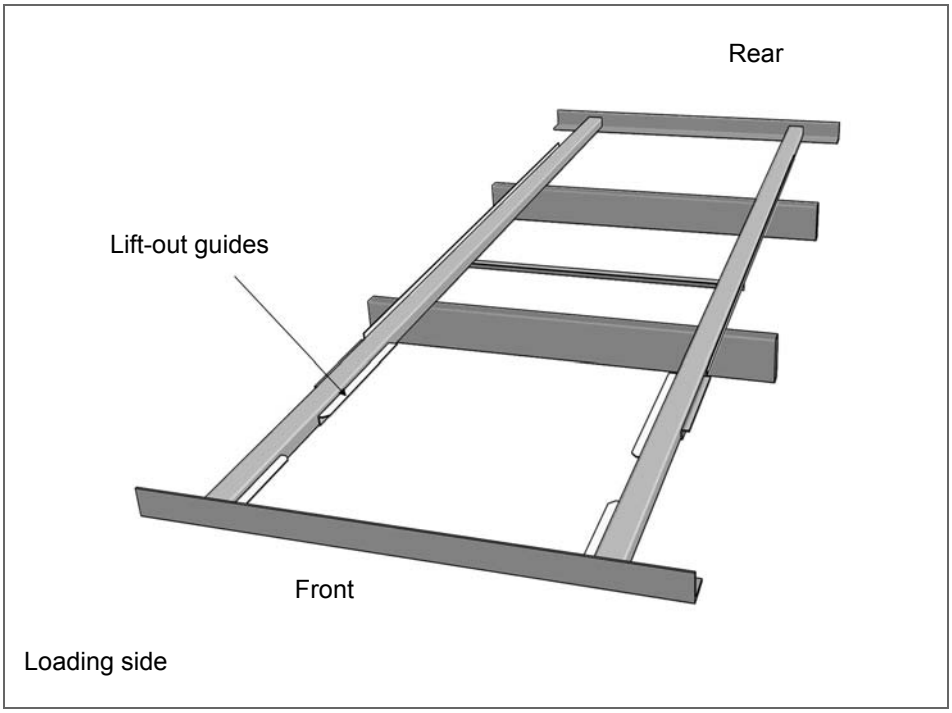
► Pull the tracks on the beams.



◆ Adjusting the position of the tracks

► Position two tracks in each lane. One on the left and one on the right. Check that the lift-out guides face inwards.

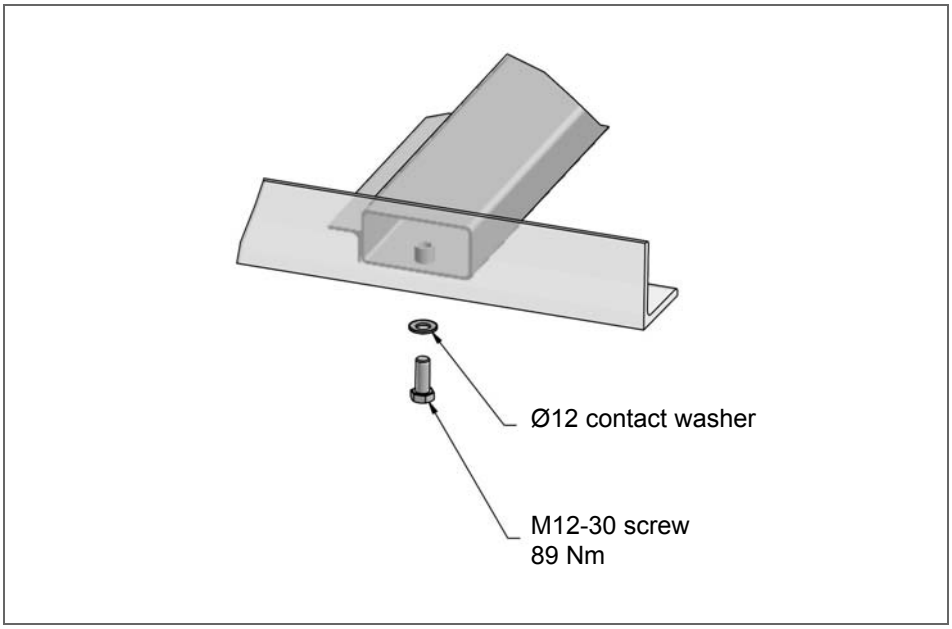
► Check that the tracks rest on all the beams.



◆ Securing the tracks

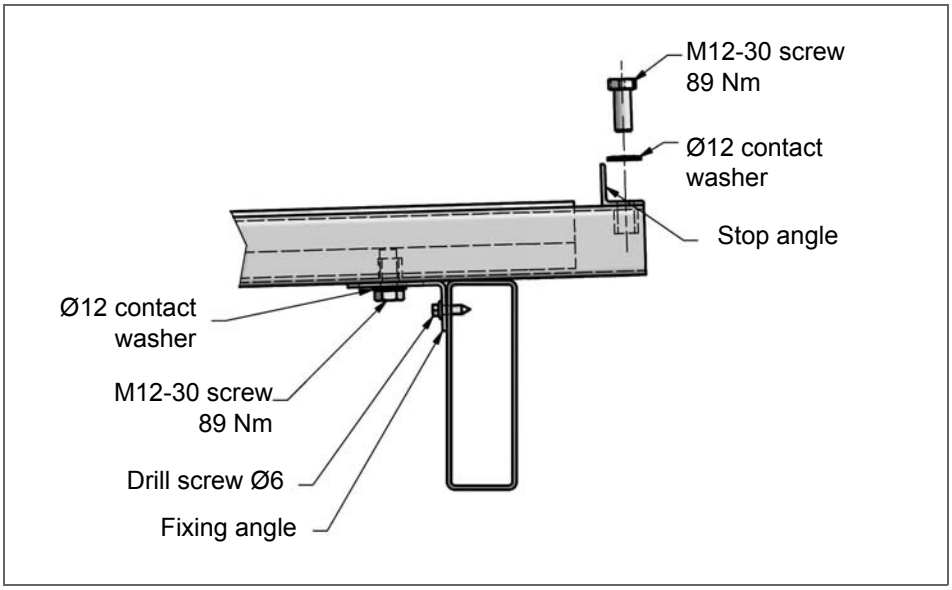
► Use the inserts to attach each end of the tracks to the angle beams. The holes in the angle beams correspond to the gap required between the tracks.

► Check that the centre-to-centre distance between the tracks matches the distance shown on the assembly plan.



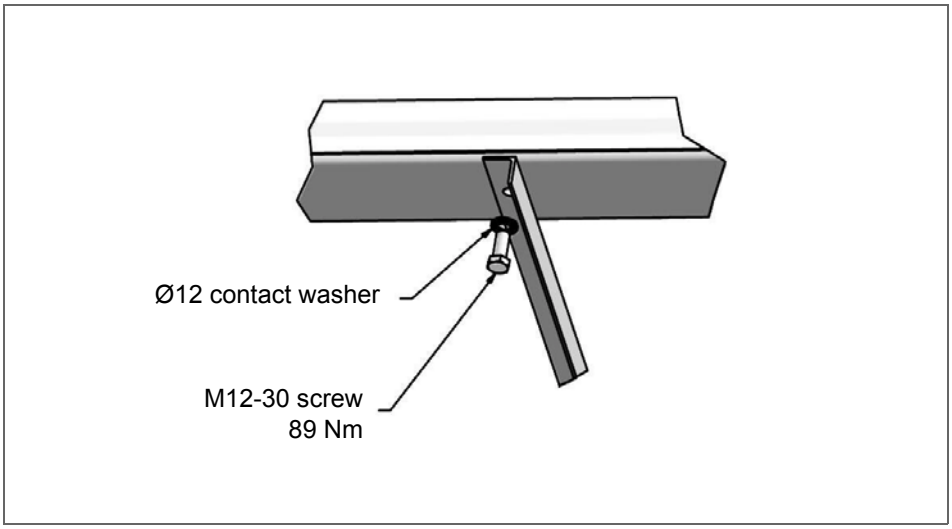
◆ Option - box beams

► If box beams are installed at the rear of the lane, remember to assemble the stop angle. Use the fixing angles to attach the tracks to the box beams.



► Evenly position the track gauge bar(s) along the lane. The gauge-bar must not come into contact with the beams. Use the most suitable holes.

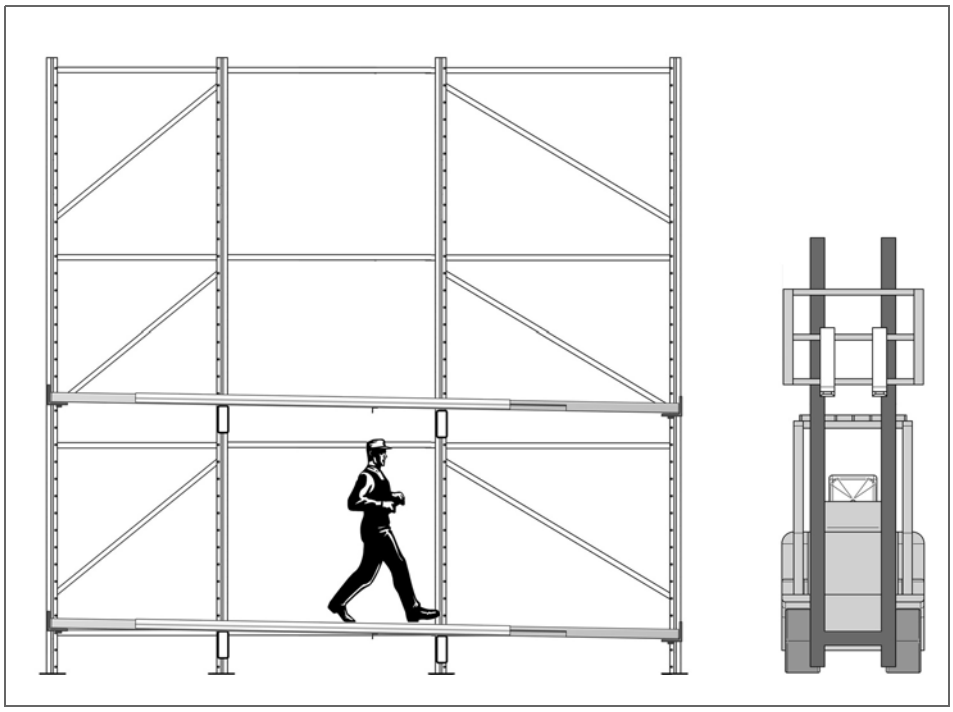
► Check that the centre-to-centre distance matches the distance on the drawing supplied with the lane.



► Then secure the gauge-bar(s) in the same way.

Always wear a harness and a hard hat in order to move about the installed tracks in safety.

► Once the tracks have been secured on the lowest level, climb onto these tracks to secure the tracks on the next higher level.

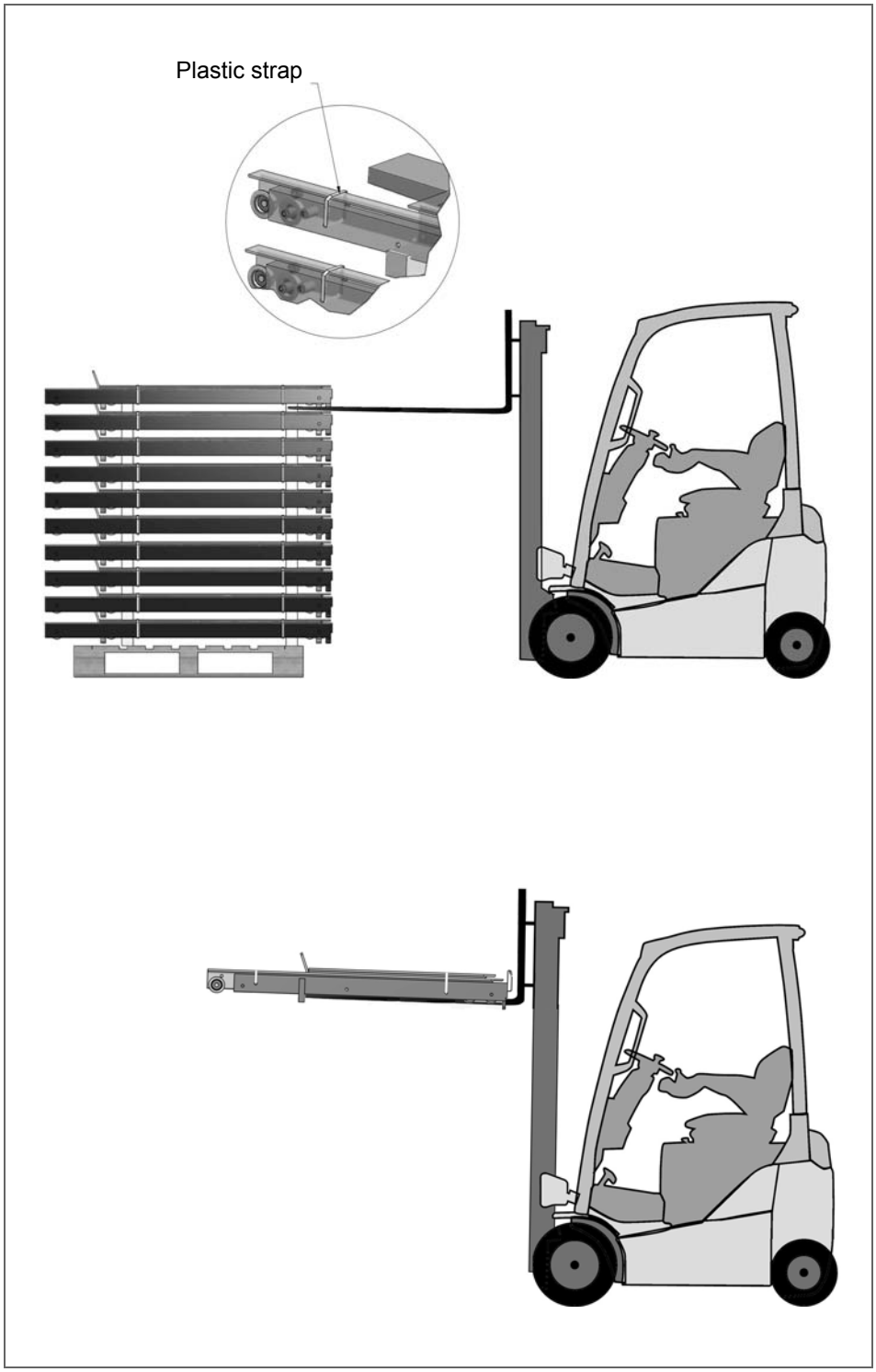


Step 3 - Assembling the carts

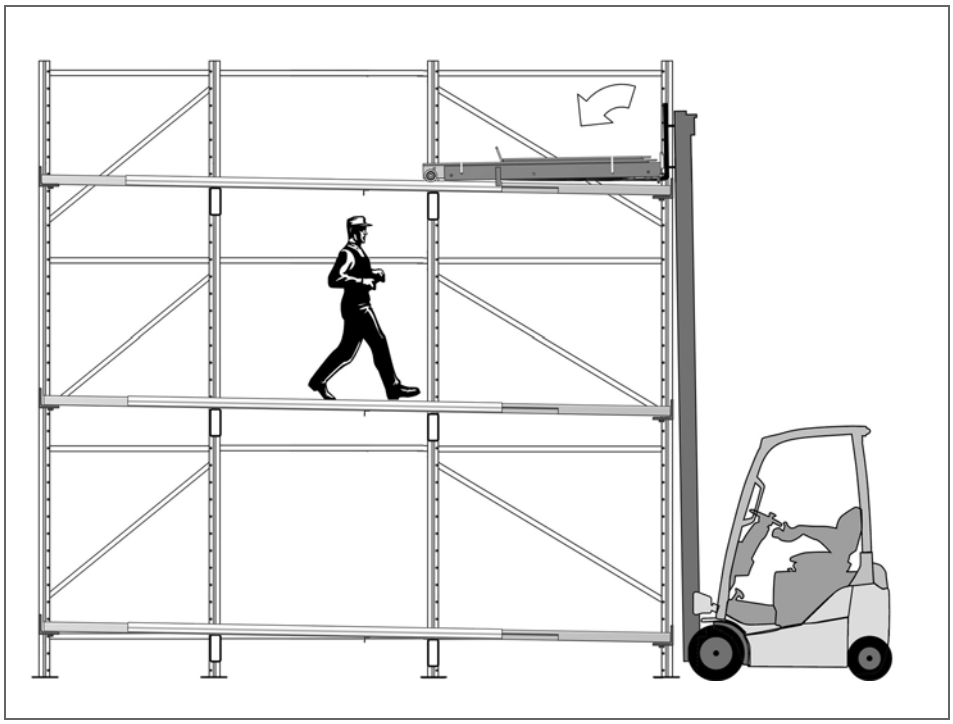
◆ Handling the carts

► Take a set of carts using the forks of the forklift.

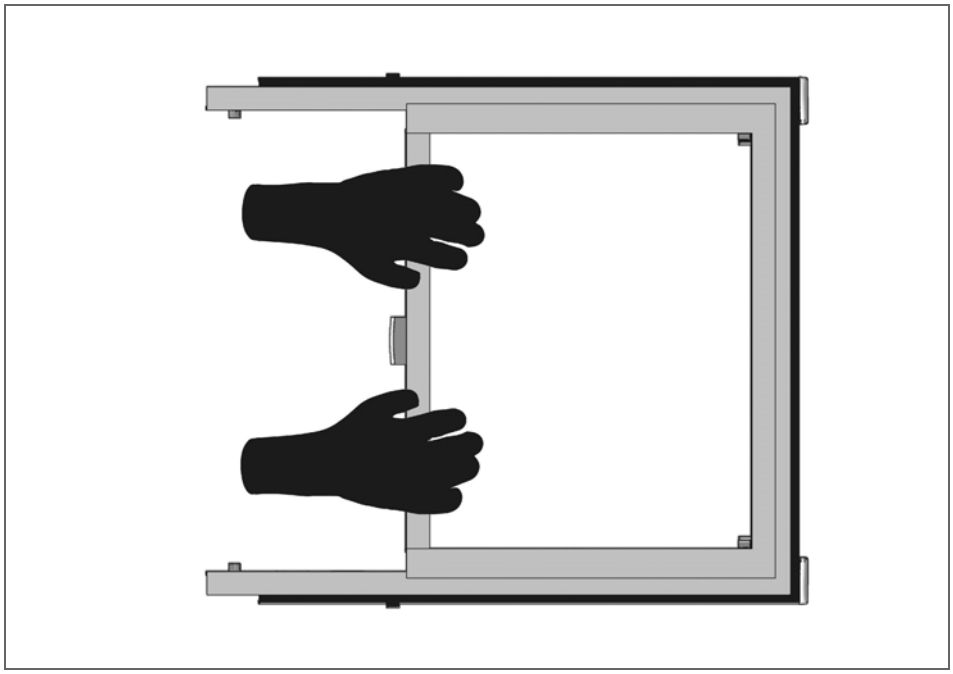
Check that the Pushback carts are properly secured by the plastic straps before handling them. The forks of the forklift must be suited to the length of the Push-back carts.



► Deposit the set of Pushback carts on the tracks.

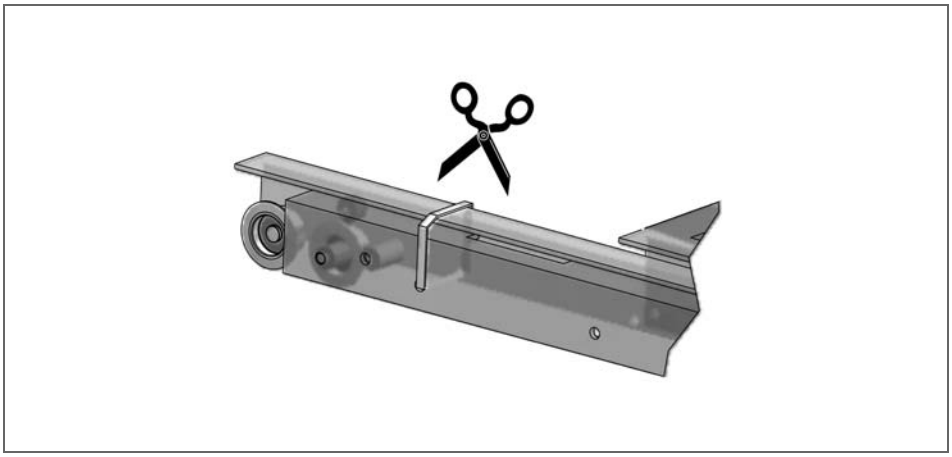


► The person on the tracks holds the set of carts by the rear cross-tie of the upper cart, then adjusts the position of the carts such that the wheel flanges are inserted in the guides.

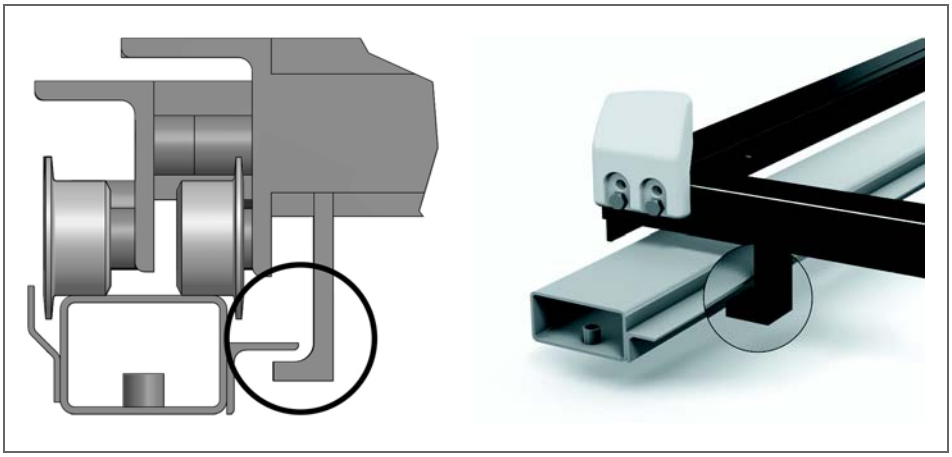


There is a risk of hands being trapped between the carts when installing.

► Then cut and remove the plastic straps securing the carts.



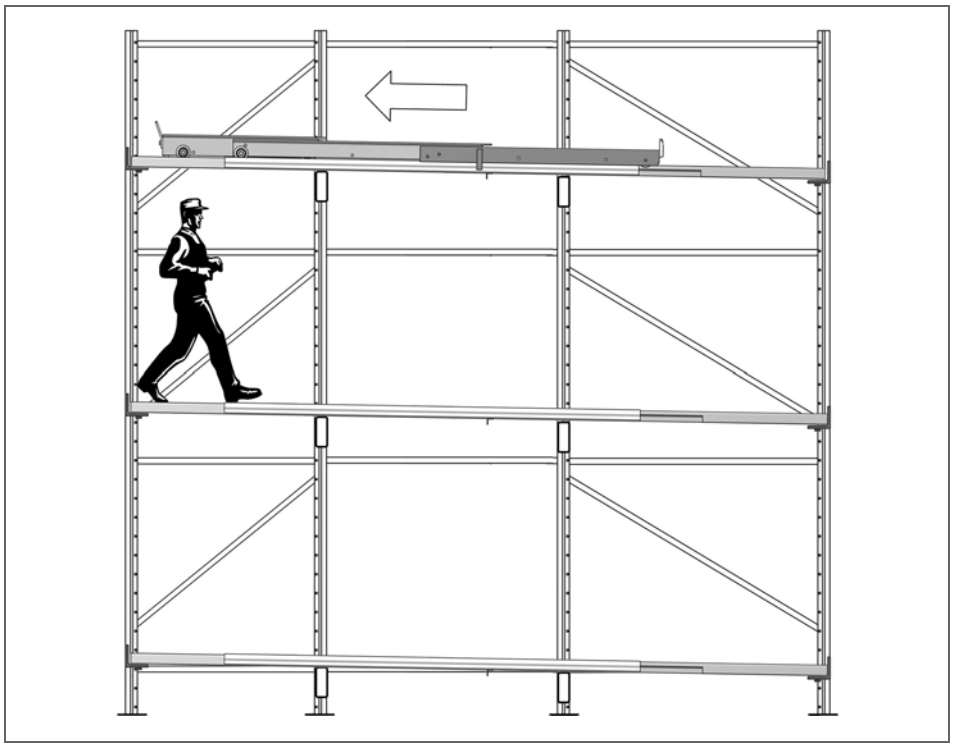
► Lower the carts towards the front of the lane. Check that the lift-out protectors of the carts pass under the lift-out guides of the tracks.



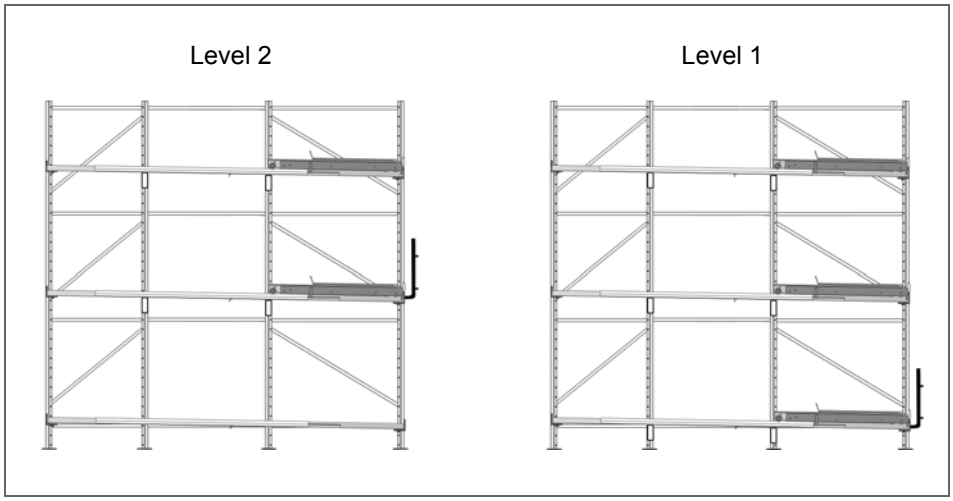
► Pull the top cart towards the rear of the lane. Since the carts are linked to one another, the second, third (and so on) carts should follow the top cart.

► Once the carts are fully stretched out, release them and they should return to their position at the front.

Repeat this operation for each lane.



► Repeat the procedure for the lower levels, starting with the carts on the highest level and working downwards.



► Once the bay is completed, proceed with the assembly of the adjacent bay, and so on.

Start-up and operation

Warnings concerning operations

Warning

Risk of injury in case of improper handling

- ► Always load containers in Pushback lanes in the right direction. Check that the front and the depth of the container comply with the recommendations included in the confirmation of the order.
- ► Load and unload the pallets at a constant speed (max. 0.3 m/s). When unloading, the forklift must restrain the train of pallets.
- ► Never load a container from the rear of the lane.
- ► Never attempt to load a pallet in a lane that is full. When the lane is full, the yellow multi-purpose push plates at the front are no longer visible.
- ► Do not insert containers in the lane if they do not enter completely into it.
- ► Immediately remove any containers that stick out from the lane or are resting in full or in part on the push plates.

Notice

Damage in case of improper handling

Note the following remarks.

- ► Load carefully so as not to damage the lane, the rack, the containers or the products stored in them.
- ► Never touch the carts or the rack with the forks of the forklift.
- ► Never use the side shifter in the lane.
- ► Only use the forklifts described in the order confirmation.
- ► In the event of a malfunction or if you see any signs of damage, immediately stop the lane and set up appropriate signage.
- ► Immediately inform the company's Maintenance Department of any damage due to impact on a rack, carts or tracks.
- ► If metal parts from the Cart Pushback are found on the floor, immediately stop every level of the bay and the neighbouring bays. Set up appropriate signage.
- ► In the event of a blocked container, remove it and determine the cause of the blockage. If the container appears to be defective, set it aside from the storage zone.
- ► In order to prevent loads from tipping over, provide safety equipment such as grates or nets.

Before starting up the installation, all operations staff must be informed about:

- **The specific use of a dynamic storage installation**
- **All the risks inherent in a dynamic storage system, such as falling loads, moving loads, cut-offs.**

Checks before the initial start-up

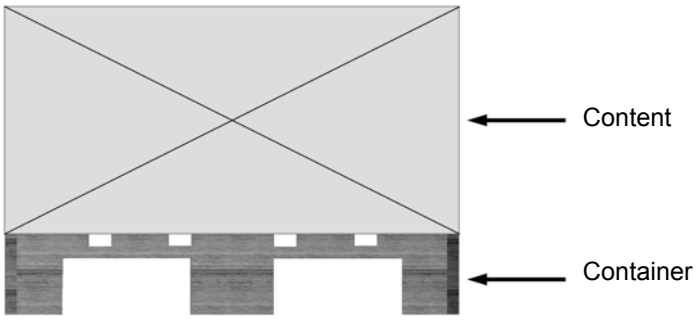
► When connecting the storage lanes and other equipment in the warehouse, perform a risk analysis of the entire installation.

► In order to use the installation in a safe configuration, verify the suitability of the width of the rows, the height of the installation, and the characteristics of the forklifts, e.g. original manufacturer's protections, turning radius, stability and maximum load compared to the height.

► Check that the racks and lanes do not have any visible damage.

► Check that there is no foreign material in the working area.

► Check that all signage is in place (load capacity plate, restrictions for use).



Always make sure that the push plates are securely attached to the cart before use.

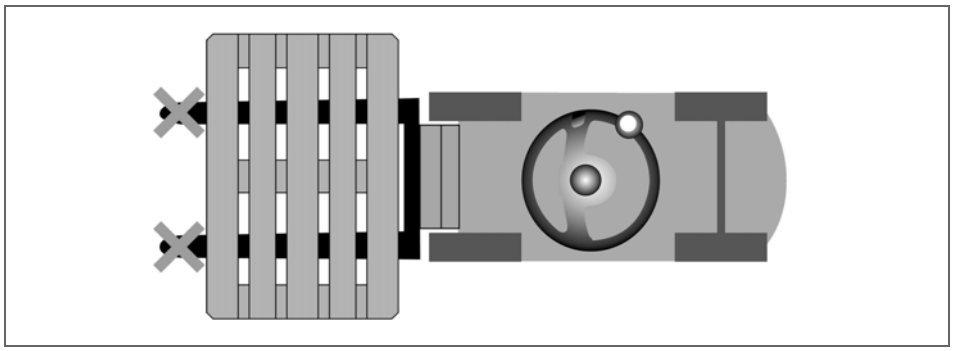
► If the yellow multi-purpose push plate is missing from the front or if any of the plates appear to be out of order (e.g. loose), close the entire bay and proceed with the maintenance operations described in *"Cleaning, maintenance, and repair", page 52*.

Forklift requirements

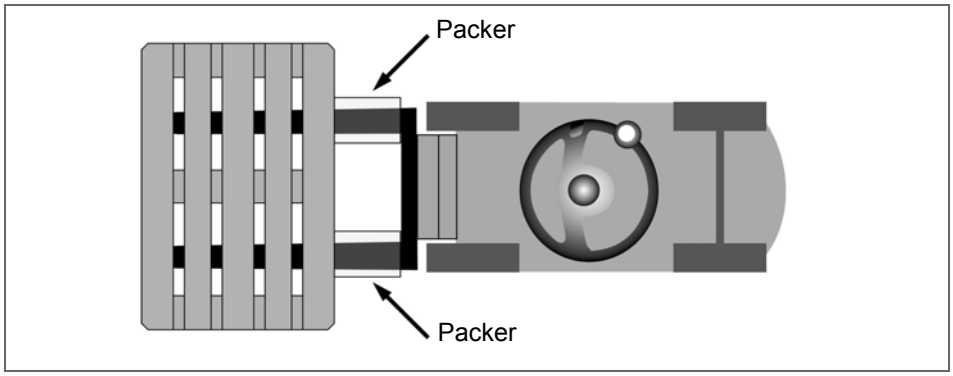
The forklifts are described in the order confirmation.

The forks

- The forks must be suitable for the depth of the container.
- The fork spacing changes according to the type of pallet used so as to carry the loads in a stable manner without damaging the container.
- The forks of the forklift must not protrude beyond the container.



- If the forks of the forklift stick out, then use packers (make sure the center of gravity remains on the forks). This operation can be performed thanks to the residual capacity of the cart.



The handling systems used (type of forklift and width of the aisles) must allow the containers to be loaded and unloaded parallel to the axis of the corridor. Take care when using articulated forklifts.

Lifting height

- The maximum lifting height of the forklift should enable risk-free loading and unloading at all levels of the installation.
- Use a forklift truck with tilting forks (and not a tilting mast) to handle loads that are more than 4 metres high.

Technical characteristics

The forklift's technical characteristics must be suitable for the containers to be stored as well as for the height of the loading and unloading zones.

Refer to the manufacturer of the forklift.

Recommended equipment

It is recommended to use forklifts with the following equipment:

- An onboard camera system on the forks for lanes at heights above 6 meters
- Check the residual capacity (weight) of the forklift and the height
- Visual markers (yellow multi-purpose push plates)

Operation

Close down a lane if you observe any of the following:

- Suspicious noise
- A visibly worn component
- Un contenant bloqué
- A deteriorated rack
- A defective attachment between the lane and the rack.
- Wheel racks not held in parallel
- A component which has failed or which is not operating correctly

Checks before each start-up

► Check that everyone present is informed and trained on the use of the system, and that no one is in a position of danger.

► Check that there is no visible degradation to the lanes or the rack.

► Check that there is no foreign material preventing correct operation of the installation.

► Check that all signage is in place (load capacity and restrictions for use).

Loading a container

Warning

Risk of injury in case of improper handling

► Only load containers into the lane from the front.

► In the event of a blocked container, remove it and determine the cause of the blockage.

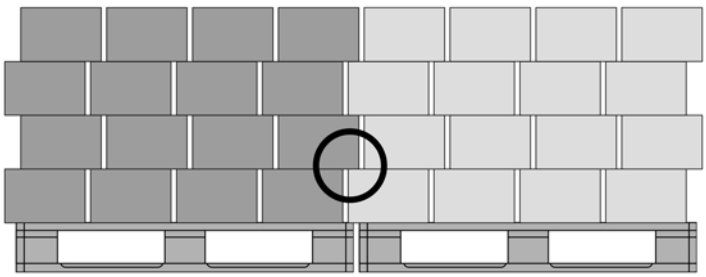
Notice

Damage in case of improper handling

► Load carefully so as not to damage the lane or the products stored in it.

► Never touch the carts, tracks or the rack with the forks of the forklift.

► Do not use containers that may become nested or snagged. By way of example:



► Check the bottom of the container in order to detect any possible damage or breakage of the runners, or the presence of nails or foreign matter.
Damaged containers should not be used in a dynamic lane: they should be removed from the storage zone.

► Make sure that the container to be loaded is one of those described in the order confirmation.

Unloading a container

Warning

Risk of injury in case of improper handling

- ► Unload the containers in the lane on the front side only.
- ► Never touch the trolleys, rails or the rack with the forks of the forklift.
- ► In the event of a blocked container, remove it and determine the cause of the blockage.

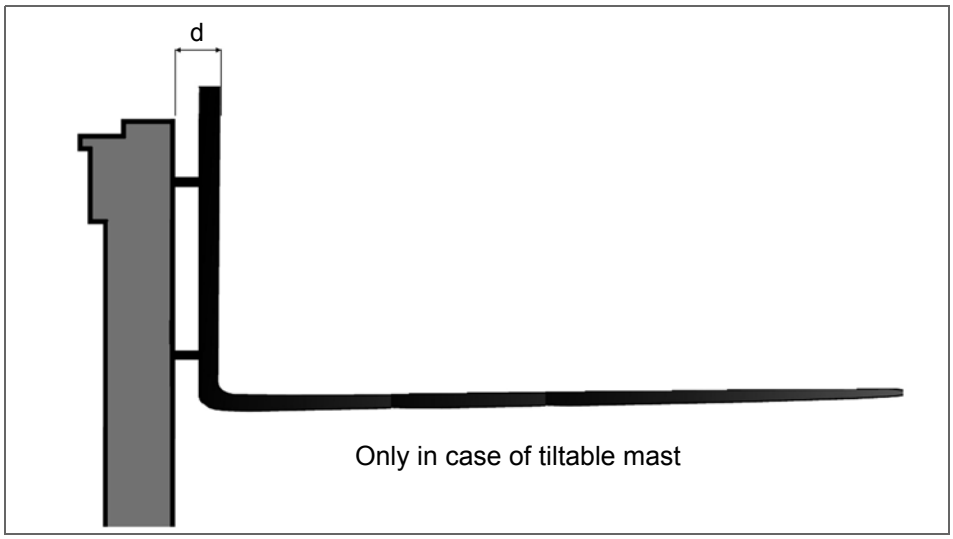
Notice

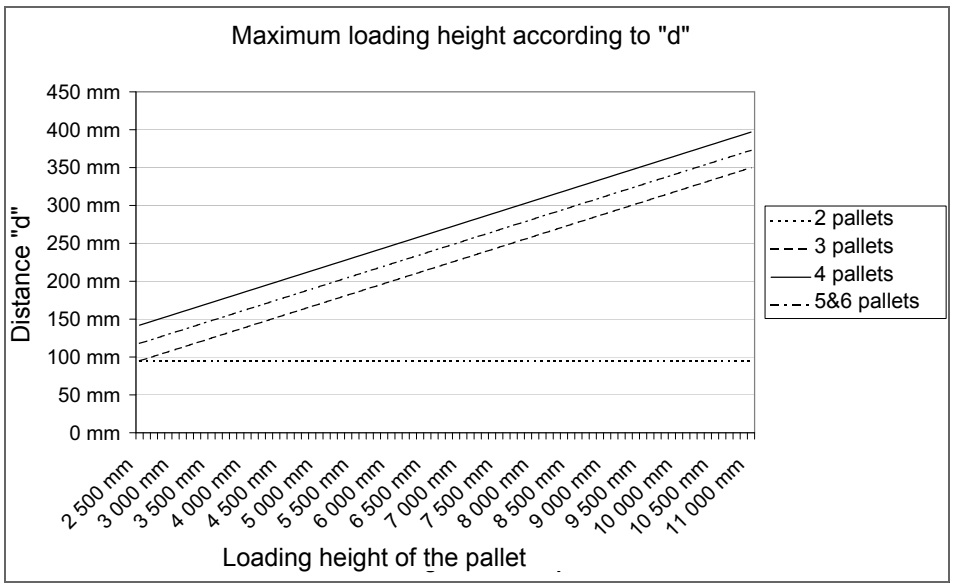
Precautions to avoid damaging the product and its environment

- ► Unload carefully so as not to damage the lane or the products stored in it.
- ► Never touch the trolleys, rails or the rack with the forks of the forklift.
- ► Ensure that the container and its contents are stable and secure before unloading.
- ► Insert the forks of the forklift under the container.
- ► Raise the container gently.
- ► Slowly approach the installation on the front side.
- ► Align and centre the container correctly in the lane.
- ► Reverse the forklift slowly, so as to control the descent of the accumulated line of pallets in the lane.

Loading height

Do not exceed the maximum loading heights on the highest level in accordance with the distance "d" shown on the forklift.





Loading: forklift with tilting mast or forks

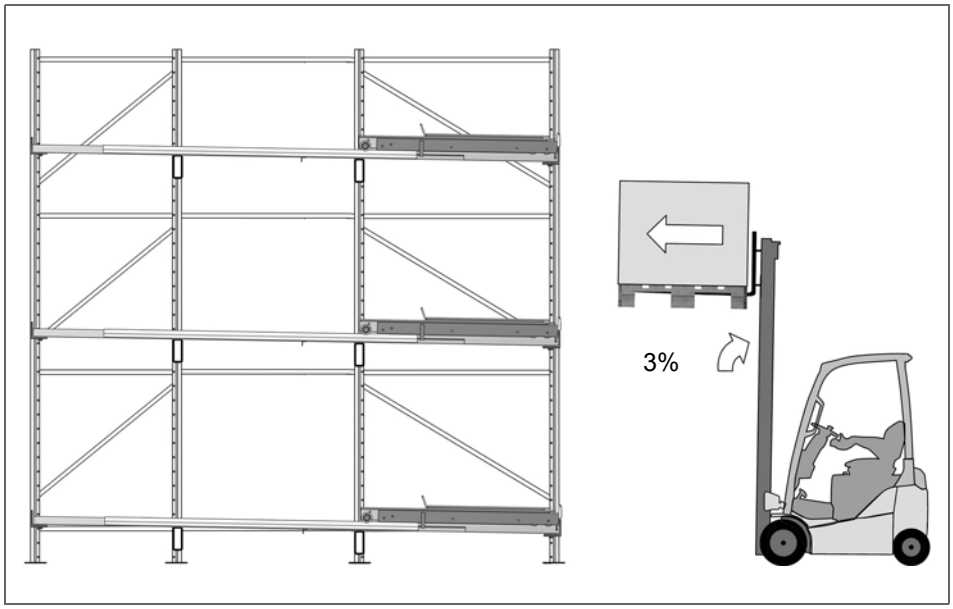
In LIFO lanes, like the Cart Pushback, loading and unloading both take place at the front. Never load or unload a container from the rear.

Loading the first container

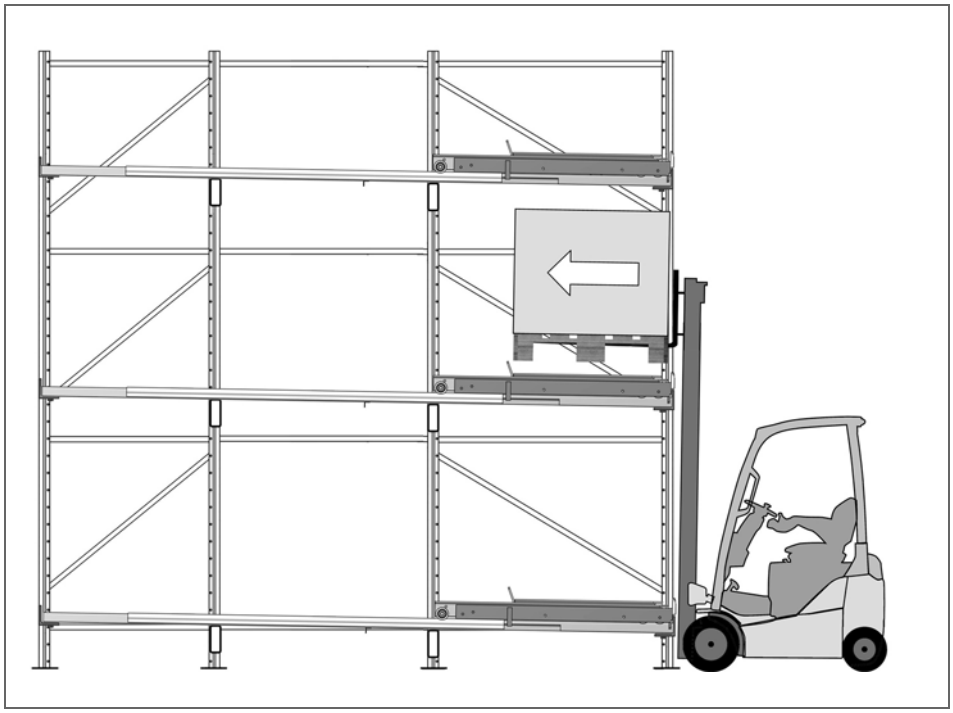
► Align and centre the container in the axis of the lane.

► Tilt the forks of the forklift towards the rear by 3% in the axis of the lane.

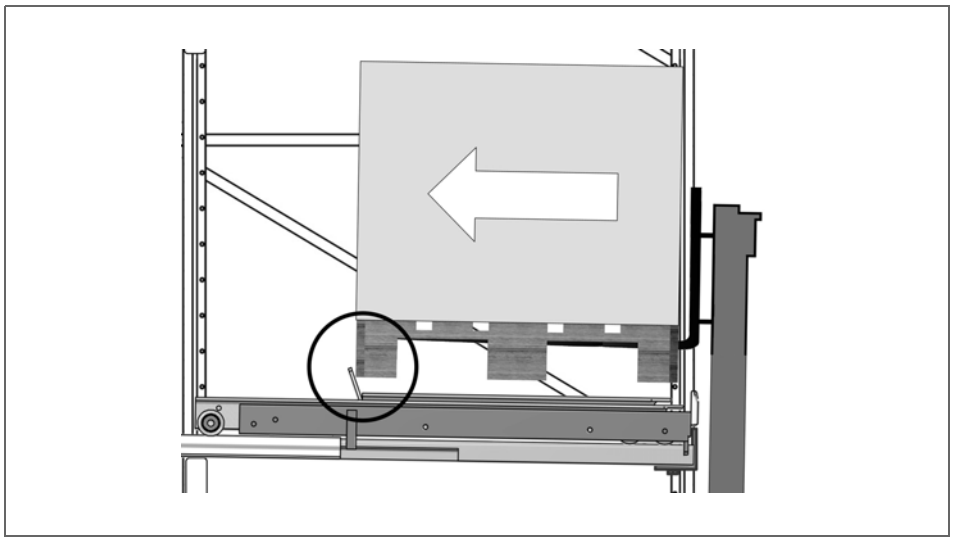
Never use the side shifter when the load is inside the structure.



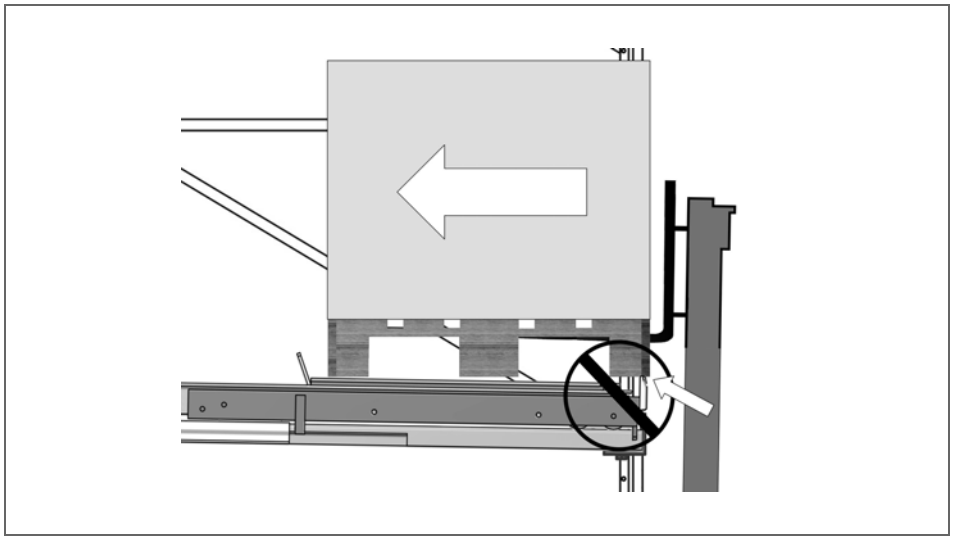
► Keep the container inclined and insert it into the lane.



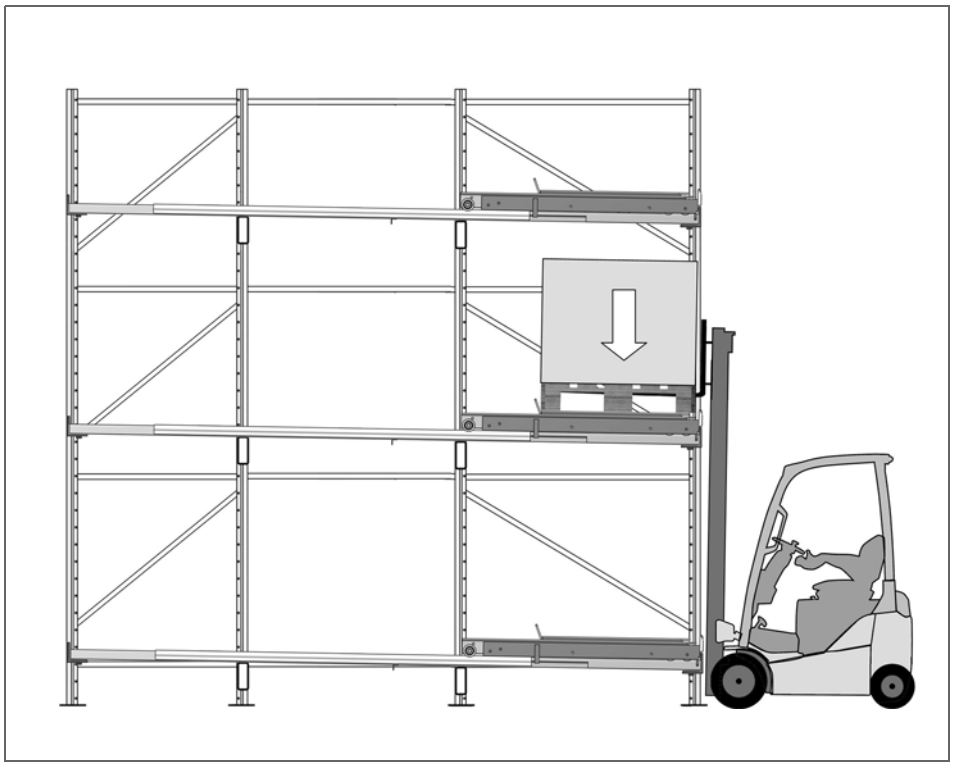
► The container must touch the pallet guide.



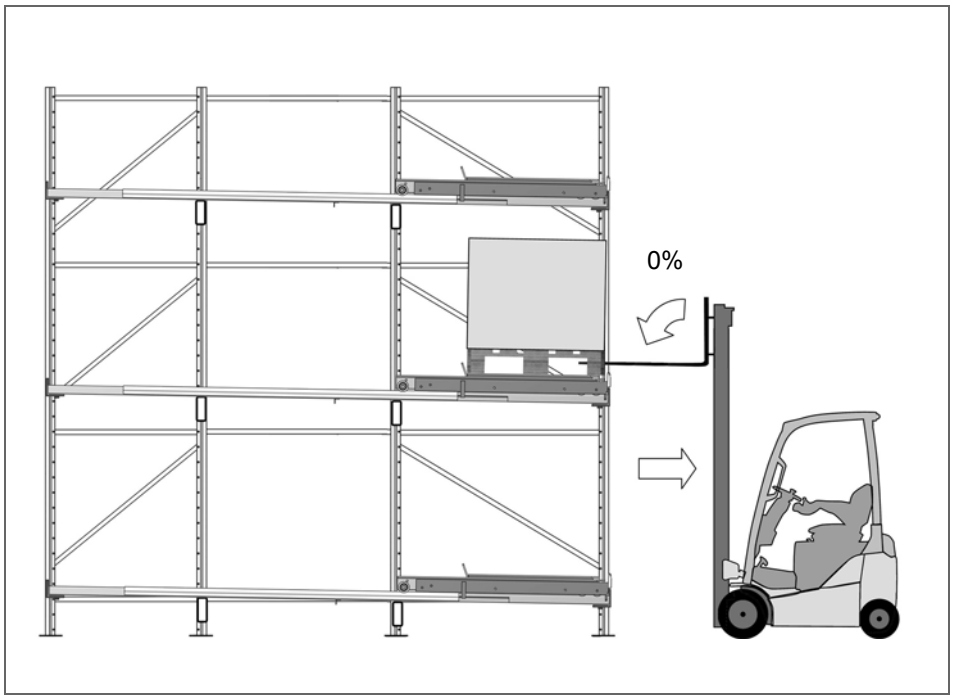
Never deposit a container so that it is resting on the multi-purpose push plates.



► Carefully place the container on the top cart without jarring the container. The container must not be placed abruptly.

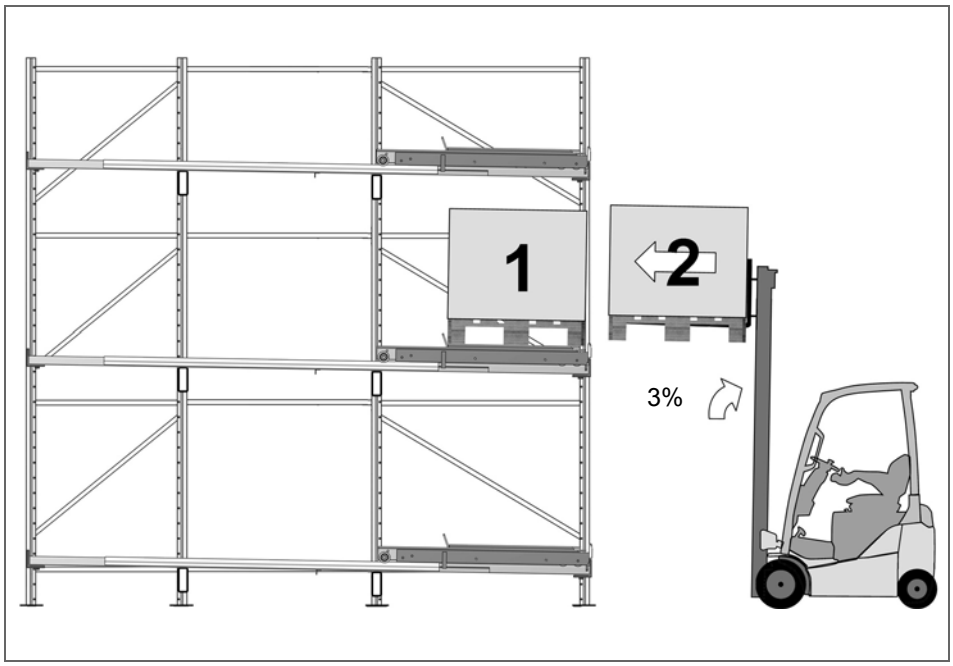


► Reverse the forklift and return the forks to the horizontal position. Make sure that the forks do not touch the carts.

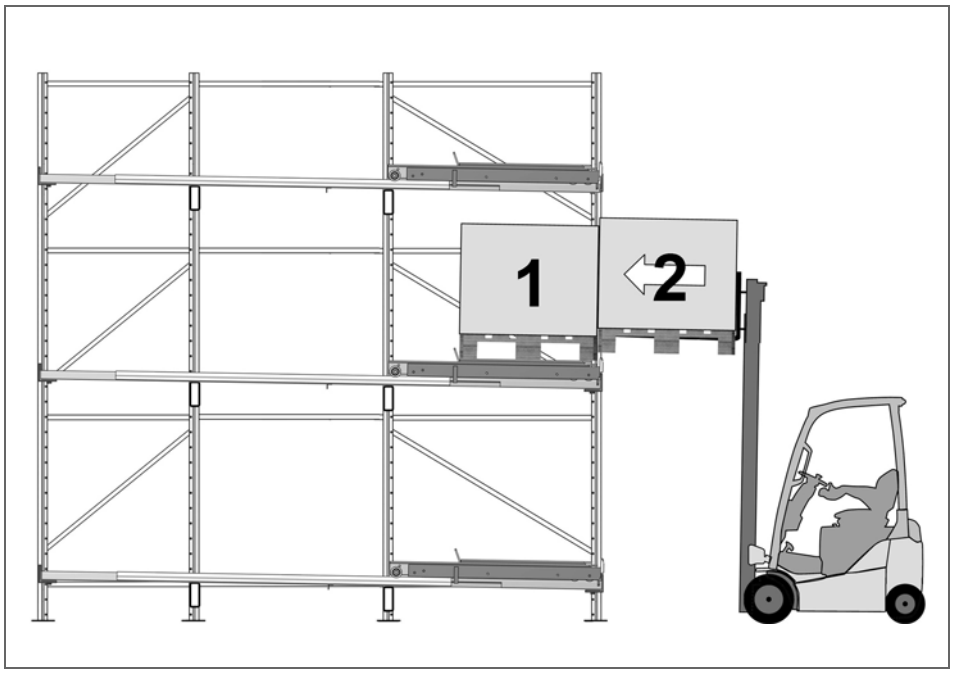


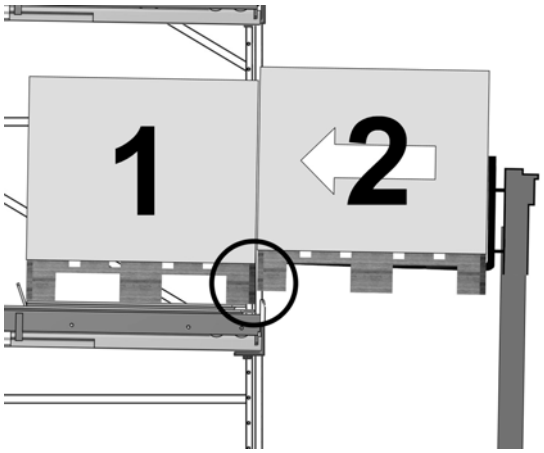
Loading the second container

► Tilt the forks of the forklift towards the rear by 3%.

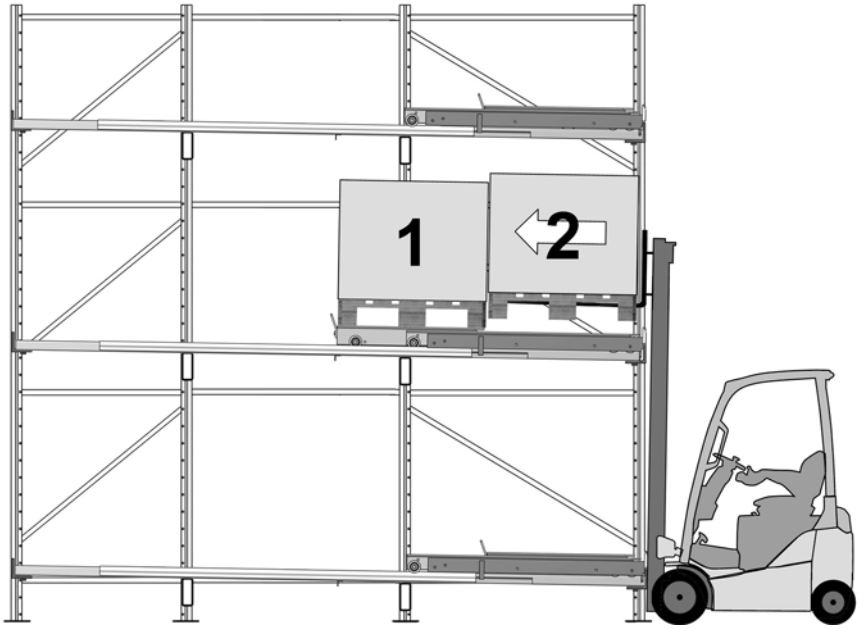


► Push the first container towards the rear of the lane using the second container. Push the containers one against another. Position as close as possible to the multi-purpose push plates and adjust the height of the forks when maneuvering.

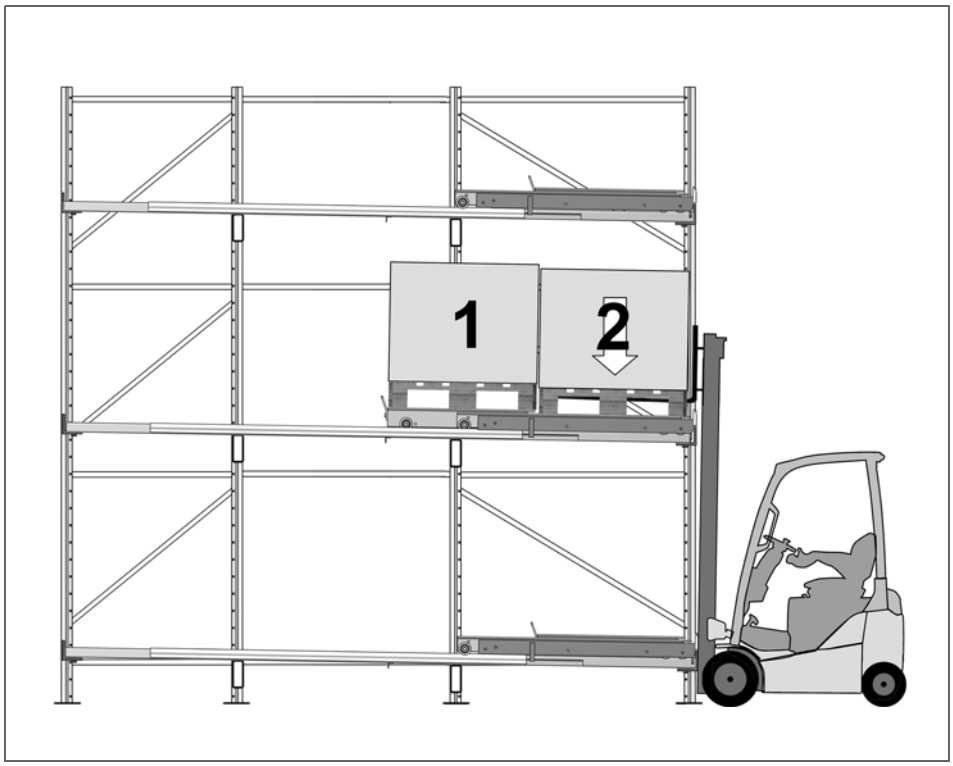




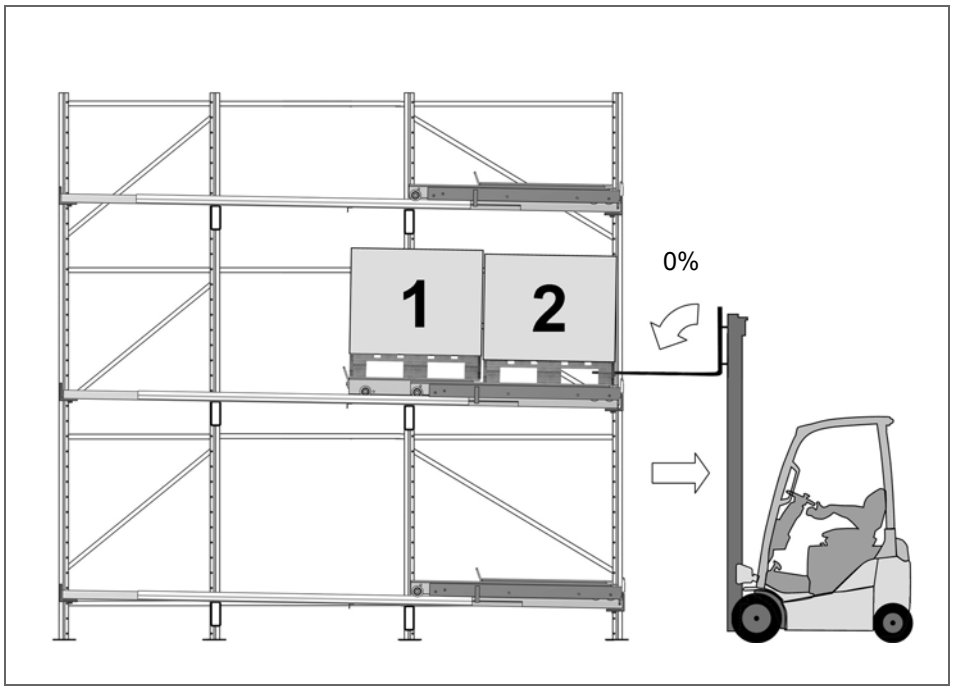
► Push the container until it is fully inserted in the lane. It must be positioned beyond the two multi-purpose push plates.



► Carefully place the container on the top cart without jarring the container. The container must not be placed abruptly.



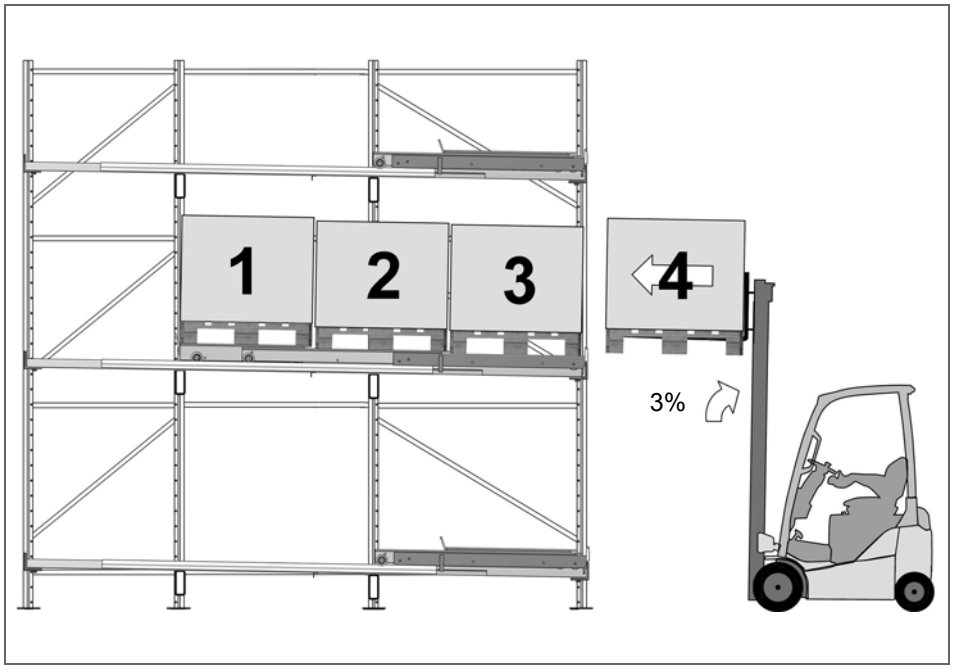
► Reverse the forklift and return the forks to the horizontal position. Make sure that the forks do not touch the carts.



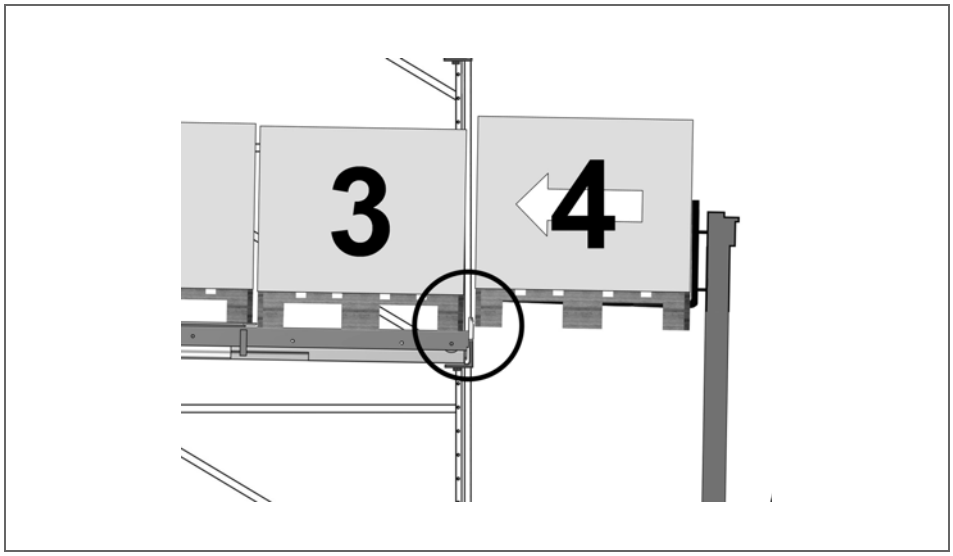
Loading the last container

If the multi-purpose push plate moves backwards with the containers as they are loaded one against another, then the operator knows that no more containers can be loaded. When this happens, reverse and load the container by pushing the push plates.

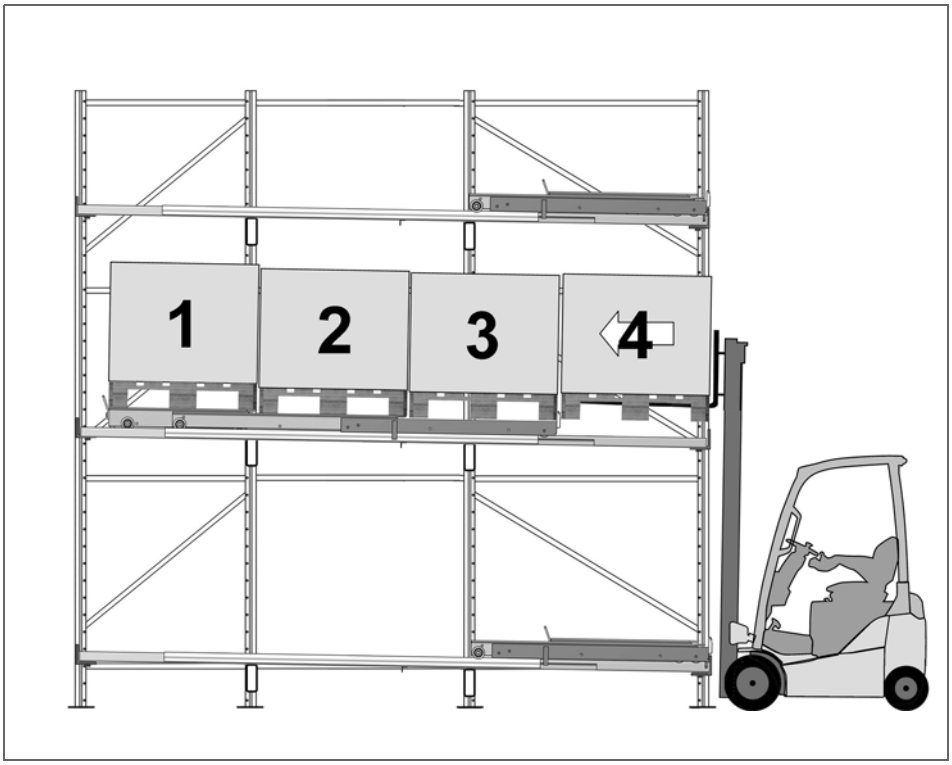
► Tilt the forks of the forklift towards the rear by 3%.



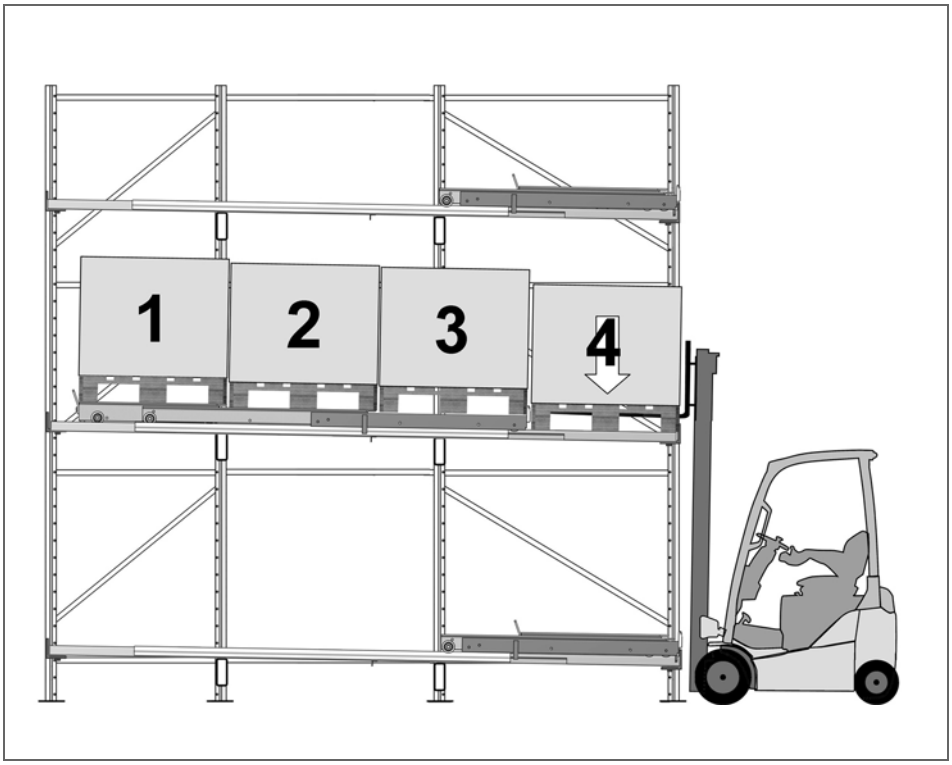
Push the multi-purpose push plates to load the last container.



► Push the container until it is fully inserted in the lane. The container must be pushed beyond the angle beam at the front.

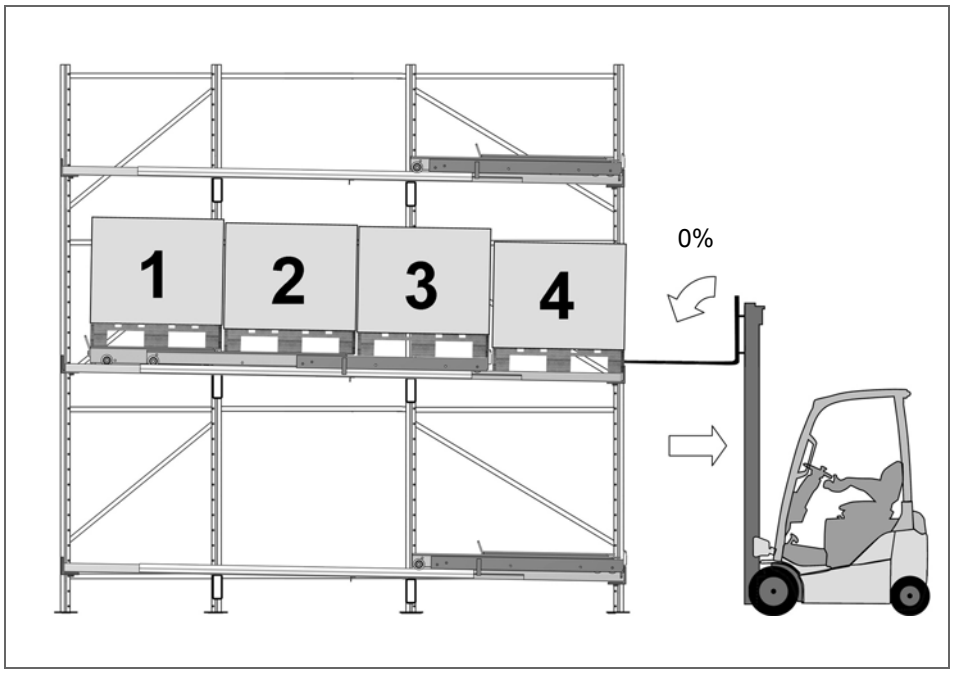


► Carefully deposit the container on the tracks without jarring. The container must not be placed abruptly.



Never deposit a container so that it is resting on the front beam.

► Reverse the forklift and return the forks to the horizontal position. Make sure that the forks do not touch the carts.

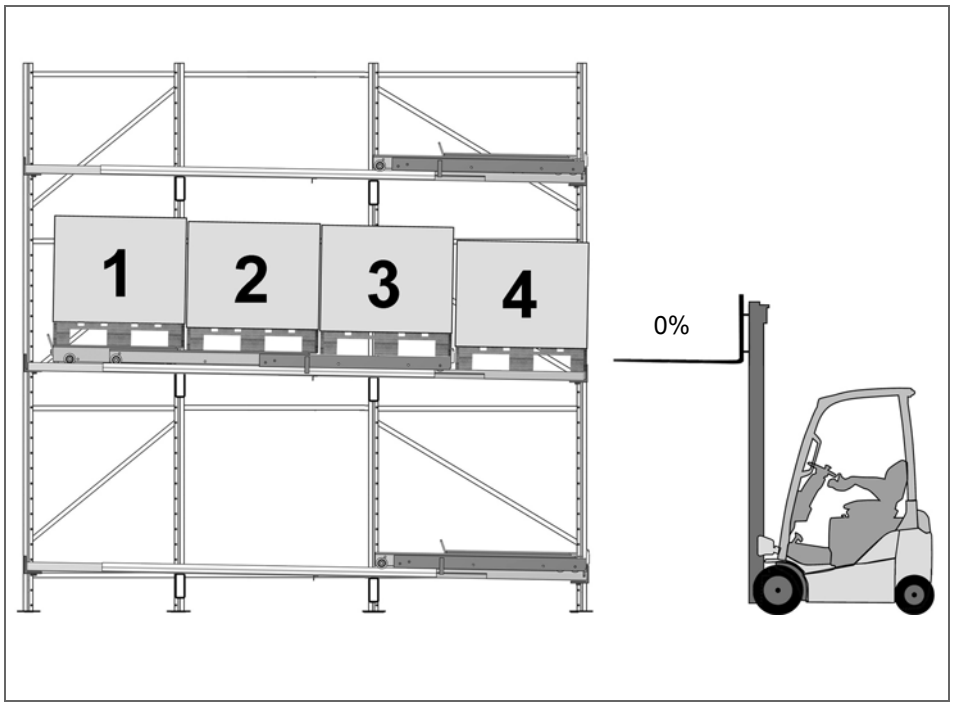


When the lane is full and no more containers can be loaded, the multi-purpose push plates are no longer visible at the front.

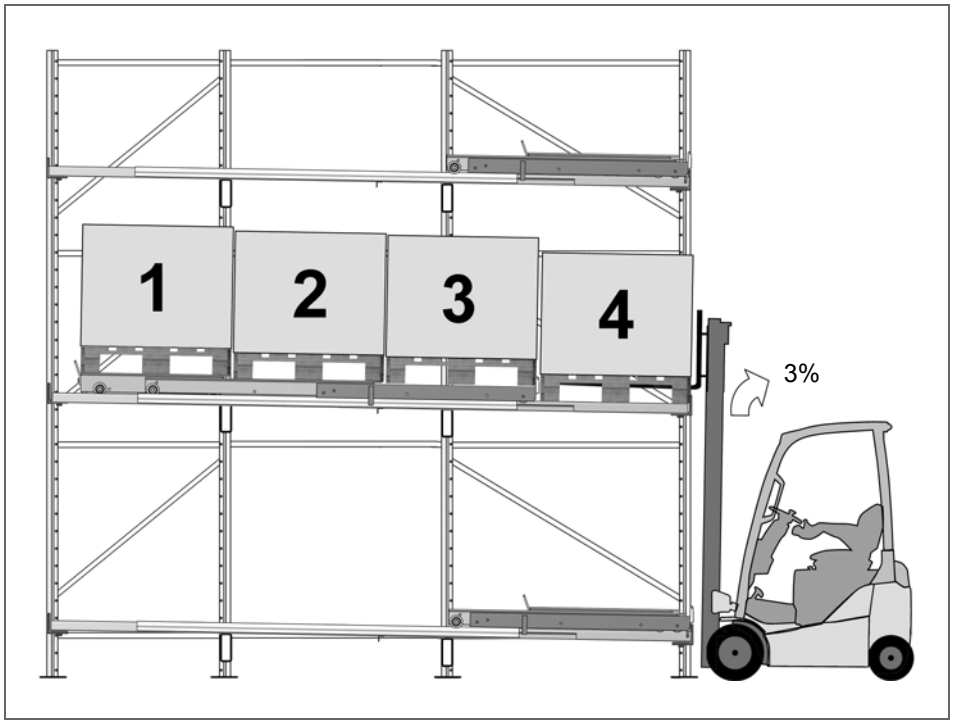
Unloading: forklift with tilting mast or forks

Unloading the first container

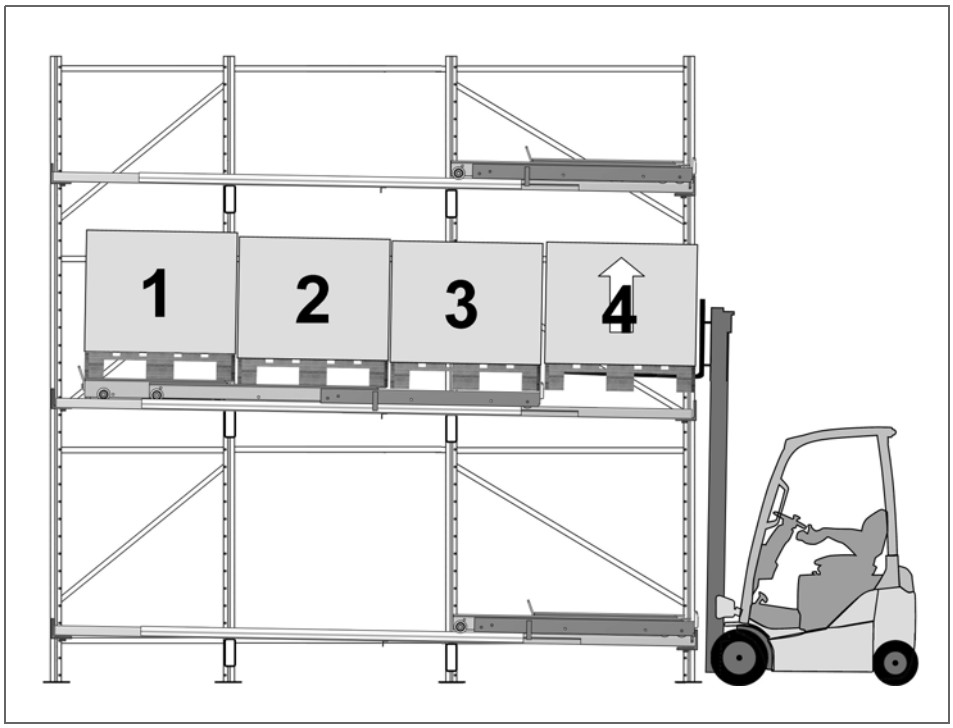
► Advance in the axis of the lane with the forks horizontal.



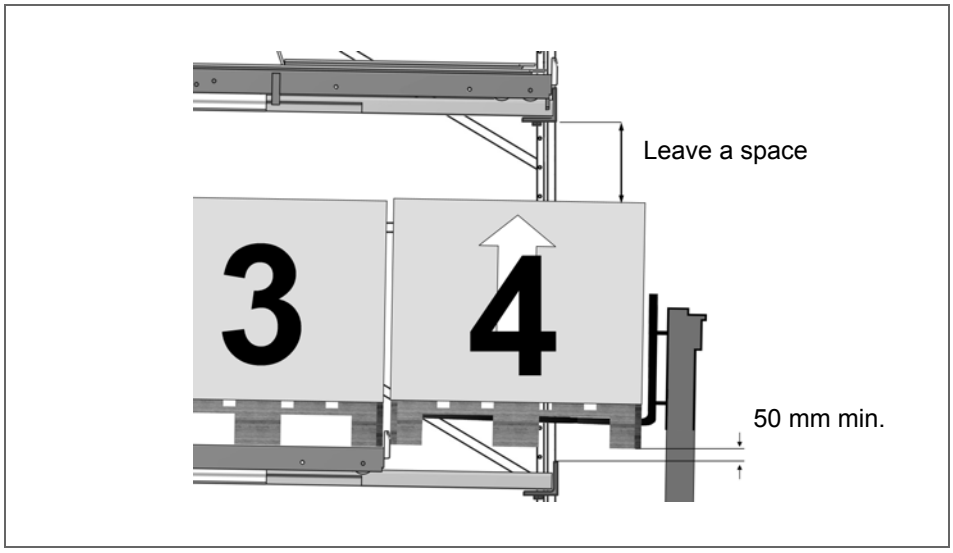
► As the forklift advances, gradually tilt the forks towards the rear. Make sure that the forks do not touch the carts.



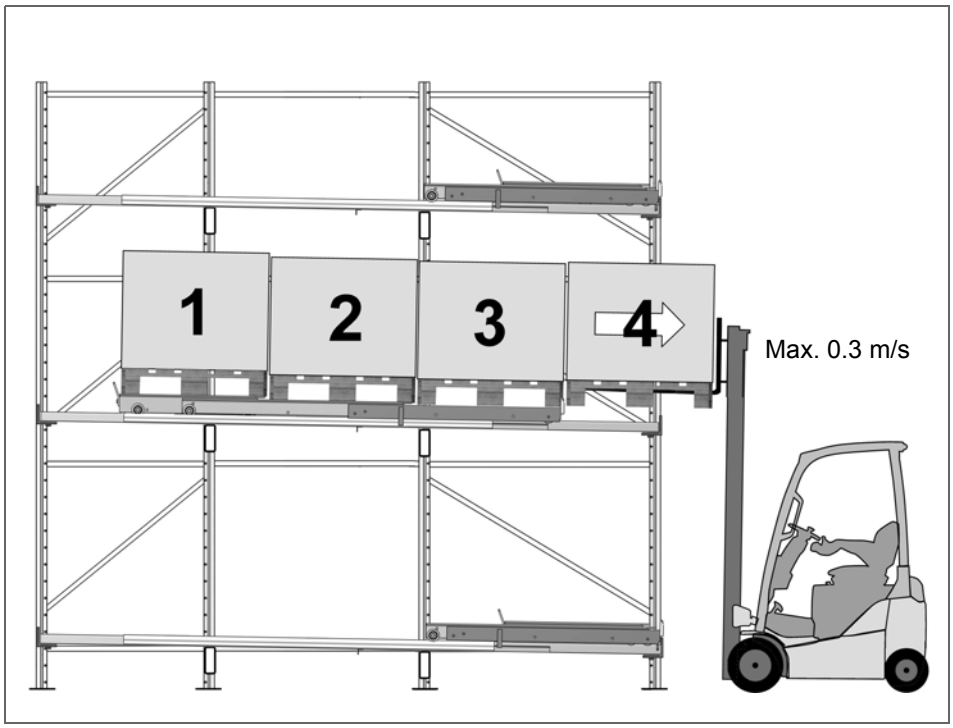
► Carefully lift the containers, to a height of 50 mm above the angle beam.



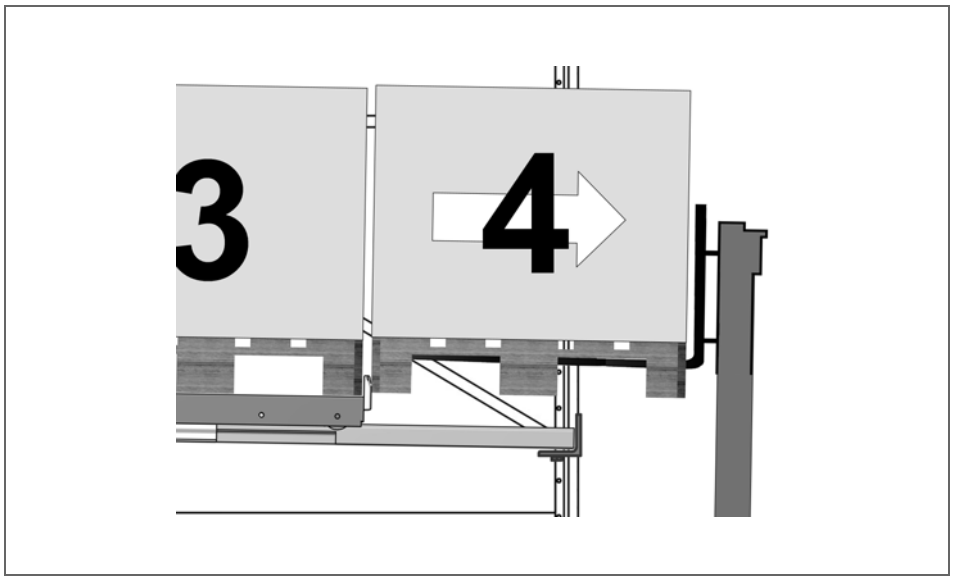
Take care to leave enough room above the container when unloading.



► Slowly reverse at a constant speed. The forklift checks and regulates the speed at which the containers in the lane descend.

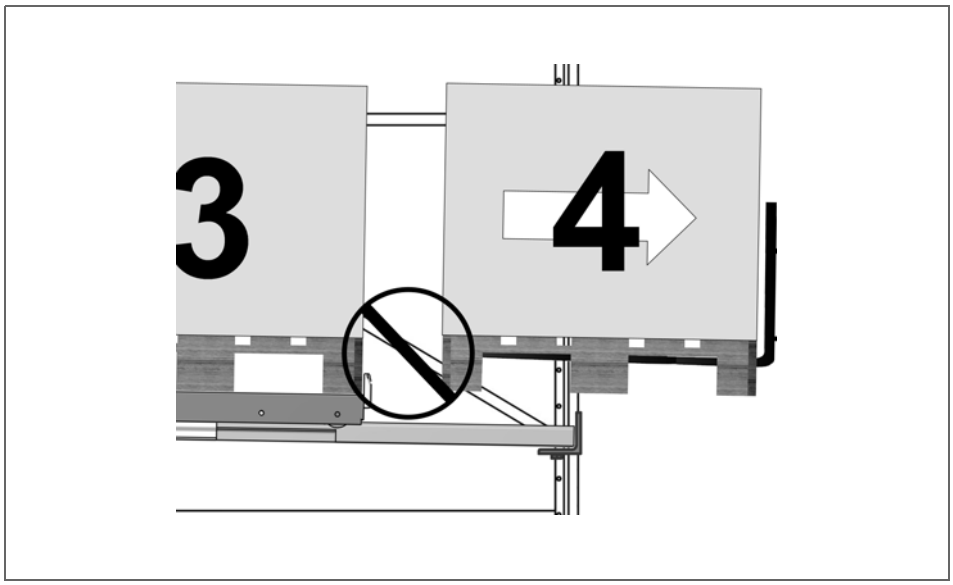


The forklift holds the train of pallets as it reverses.

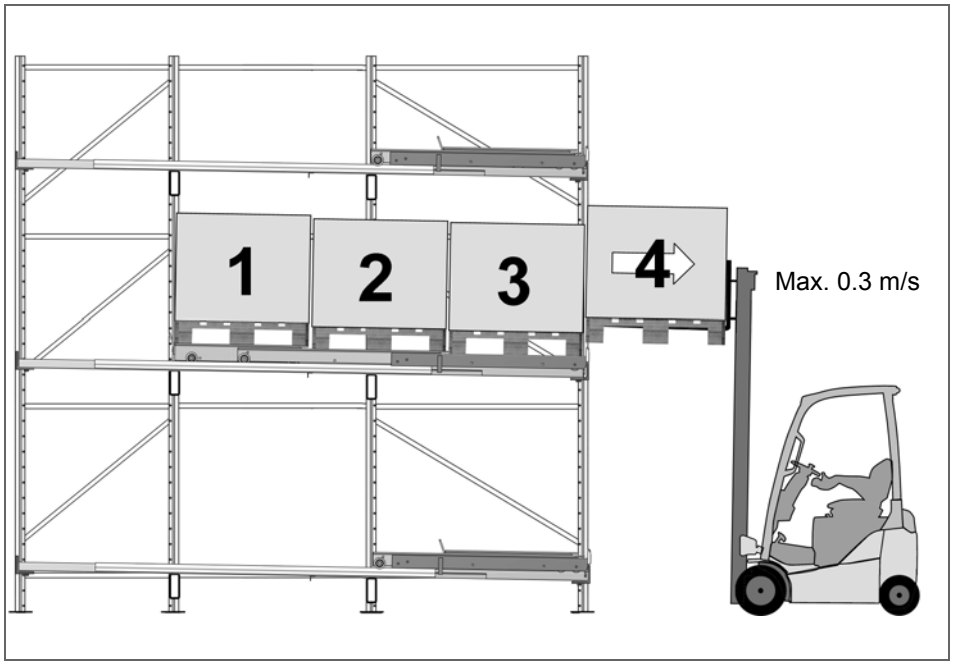


In the example below, the forklift reversed too quickly.

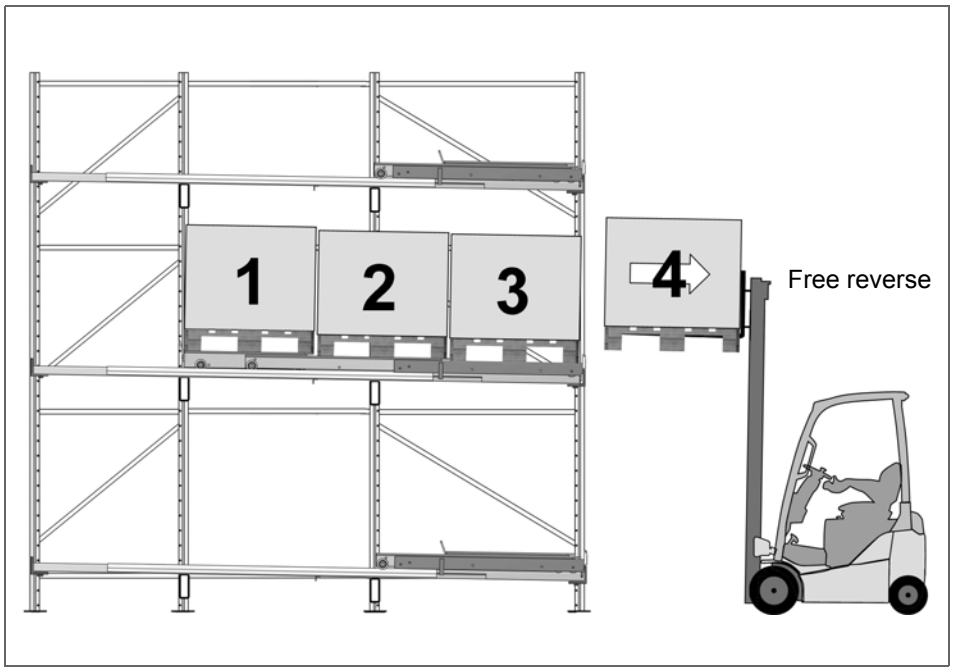
Make sure that the container being removed always remains in contact with the train of containers in the lane.



► Reverse slowly until the train of containers is resting against the front angle beam.



► Once the line of containers is resting against the front angle beam, the forklift can reverse freely.



Cleaning, maintenance, and repair

Cleaning

Notice

Damage in case of improper cleaning

► Do not use abrasive products, pressurised jets, or products which may cause oxidisation or damage the equipment.

► Clean the lane using dry cloths.

Remark in case of maintenance and repair

Warning

Risk of injury in case of improper intervention

► Maintenance must only be carried out by qualified and regularly trained personnel, in compliance with safety and other instructions.

► Wear Personal Protective Equipment (PPE).

Before any intervention, you must take into account:

- Safety instructions concerning the work area, e.g. movements in the area, welding, grinding, and the duration of maintenance operations for cold rooms.
- Specifications particular to the company where the installation is used.
- Technical data provided in the order confirmation.
- Maintenance procedures of the various products: dynamic lanes, racks, environment (e.g. sprinklers).

Preparing an intervention

► Define a safety zone around the working area.

► The safety zone includes the entire height of the bay as well as the two adjacent bays.

► Secure the zone and set up appropriate signage, nets, etc.

► Remove everything from the lane involved in the intervention before starting.

► Make sure that the area of intervention has sufficient lighting.

Performing an intervention

► At the end of the intervention, make a visual inspection of the repaired section to ensure that you did not leave any foreign materials or tools which may alter the correct operation of the installation.

► Before restarting the system, check the integrity of the lane, the rack and its environment, e.g. sprinklers.

Maintenance equipment

Lane maintenance can be performed using the following equipment:

- Platform with a rotary barrier
- Strap

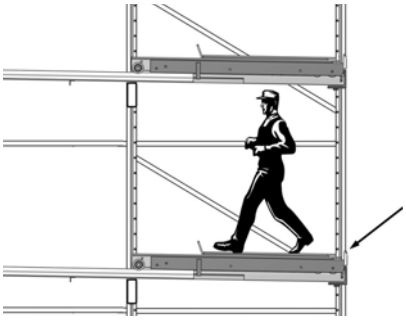
Platform

The platform may be used for maintenance from the alleys, on the loading / unloading side at the front. Use a safety harness and always attach yourself before moving.

Strap

The strap is used:

- to secure the carts in position at the front
- to prevent the operator from sliding on the carts



Walk on the strapped carts with a safety harness

Strap the carts

Working in a lane

Before working in a lane, it must be safe.

- All maintenance operations must be performed by at least two people.
- Use lifting equipment that complies with the local legislations (e.g. a scissor lift).

When working on carts in a high lane, it is often easier to gain access from underneath. To do this, empty and make safe the lane underneath.

Warning

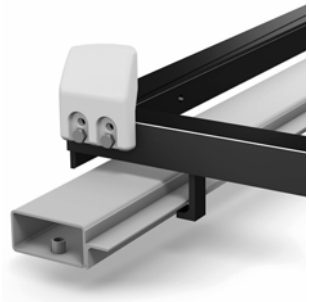
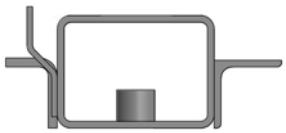
Risk of falling parts due to wheeled carts

- ► Never walk on carts that are not strapped to the front angle beam.
- ► Use the lifting equipment to approach the lane in which operations are to be performed, while respecting the local legislation.
- ► Strap the carts at the front. The strap must secure the train of carts to the angle beam on the loading/unloading side.
- ► Attach yourself to the rack using the safety harness.
- ► Climb onto the carts.
- ► Perform the maintenance.
- ► When the operation is complete, move off the carts and remove the harness.
- ► Remove the strap from the front.

List of maintenance and inspection operations

In order to keep the installation in perfect operational condition, you must systematically replace any damaged components.

Maintain a log of the checks and maintenance performed on the installation. Failing which, the operator shall be held responsible in case of an incident or an accident on the installation, and cannot claim any guarantee nor indemnity from Interroll.

Cart Pushback PF 2430		**Date:**	
Component	**Tasks/Checks**	**Work required**	**Performed by**
Tracks	Check that the rolling surface is clean.	Check the carts for fragments of pallets, cardboard or plastic film. Clean with a brush if necessary.	
	Check that the slope of the tracks is constant.	There must be no bumps or dips in the tracks. If there are, replace the tracks.	
	Check the lift-out guides.	The lift-out guides are welded on the inside of the tracks. Check for damage. Replace them if necessary. Interroll can send a quote for replacement. 	
	Check the track guides.	The track guides are welded on the outside of the tracks. Check for damage. Replace the track if necessary. Interroll can send a quote for replacement.  Also check that the groove in the tracks is clean (no fragments of pallets, cardboard or plastic film, etc.) so that the carts can move smoothly.	
	Check the gap between the tracks.	The gap between the tracks must be identical at the front, in the middle and at the rear of the lane. If the gap varies, check that the track gauge bars are properly positioned. Also check the inserts at each end of the tracks. If the inserts are defective, replace the tracks.	

Cart Pushback PF 2430		Date:	
Component	**Tasks/Checks**	**Work required**	**Performed by**
Carts	Check that no wheels are missing.	Pull the train towards the rear and check that each cart is stable. If a cart is unstable, check the wheel attachments.	
	Check the lift-out protectors.	Four lift-out protectors are welded beneath the carts. Move the carts and check that these hooks are not in contact with the tracks.	
	Check that the multi-purpose push plates are attached to the lowest cart.	The screws on the push plates must be tightened to 89 Nm. Tighten, if necessary. **If any of the screws and/or nuts are defective, only replace with screws or nuts supplied by Interroll.**	
	Check that the pallet guide is attached to the top cart.	The screws of the guide must be tightened to 89 Nm. **If any of the screws and/or nuts are defective, only replace with screws or nuts supplied by Interroll.**	
Gauge bar	Visual inspection	Inspection: no impacts or folds Replace if signs of impacts are present	
	Tightening	If necessary, tighten to 89 Nm. **If any of the screws and/or nuts are defective, only replace with screws or nuts supplied by Interroll.**	

Troubleshooting

In the event of a failure

- ► Stop using the lane and any lane which may be damaged by the failure.
- ► Secure the area and set up appropriate signage
- ► Only qualified maintenance personnel should repair the failure.
- ► Never try to hold back a container freed during a manipulation.
- ► Before restarting the system, check the integrity of the lane, the rack and its environment, e.g. sprinklers.
  Follow the maintenance procedures of the various products : racks, environment.

Container jammed or derailed

There may be many reasons causing a container to be blocked and preventing it from starting; this is not necessarily a defect in the installation. Inserting a new container usually corrects the problem.

- ► If a container is jammed in the middle of a lane, load another container into the front of the lane. The train of containers may be freed by pushing.
- ► Once the cart and the container have reached the front, empty the lane and the surrounding lanes. Then inspect the lane in which the containers become jammed.
- ► Check whether the lane or the rack were damaged by the blocked container.

Never try to free a Pushback cart manually

Content falls to the floor

- ► If content has fallen to the floor, you must secure the area before taking any further action.

Troubleshooting

Technical data in the order confirmation is noted below by the abbreviation "OCTD".

Failure	Cause	Correction
Container train jammed	Pallet characteristics (type, dimensions, weight, and stored load) not compliant with the OCTD.	► Remove the container from operation.
	Foreign bodies attached to the container (plastic film, pieces of wood, cardboard)	► Remove the foreign bodies.
	Load unevenly distributed on the container	► Repackage the container.
	Gap between the tracks not constant.	► Replace the tracks or; ► Check the gauge-bars or; ► Check that the tracks are attached to the angle beams.
	Particles in the grooves in the tracks	► Remove the particles
	Cart lift-out protectors bent	► Remove the carts and straighten the hooks. ► If they are too fragile, replace the cart.
	Lift-out guides bent	► Remove the carts and straighten the guides. ► If they are too fragile, replace the track.
	Particles on the tracks	► Remove the particles
	Damaged rack: see the rack maintenance procedure	► Replace the rack if necessary.

Decommissioning and scrapping

Waste disposal

Recommendation for protecting the environment

As far as possible, the packaging should be disposed of in an environmentally friendly way.

The speed control rollers contain lead.

The rollers and speed controllers contain plastic.

The tracks and trucks are in steel. They do not contain plastic components. The paint is lead free.

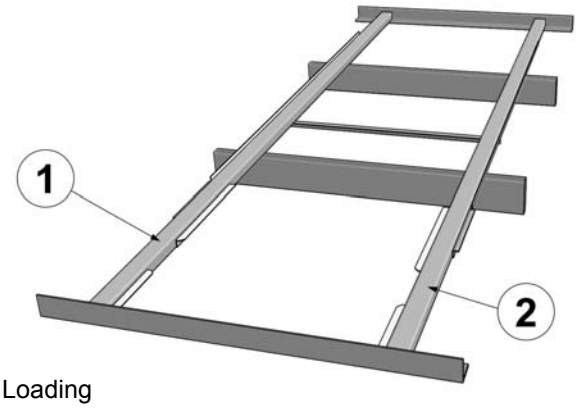
- ► For all maintenance work, and when disposing of equipment, please comply with environmental standards and use appropriate disposal methods.
- ► In the event of cleaning with substances which may harm the environment, store those substances in suitable containers which may be handled. Close and dispose of them using appropriate methods. Comply with the warnings on the packaging of harmful substances.

Appendix

Spare parts

Spare parts illustrations

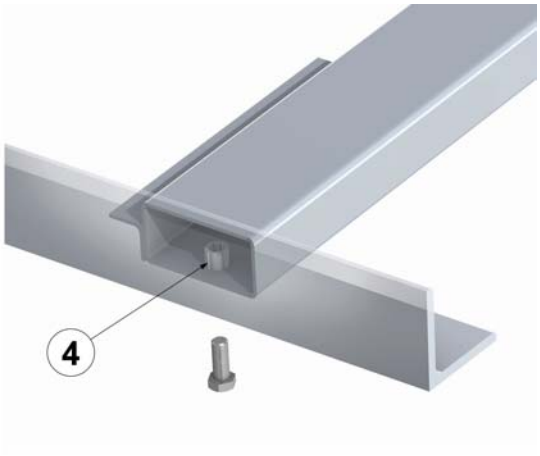
Tracks



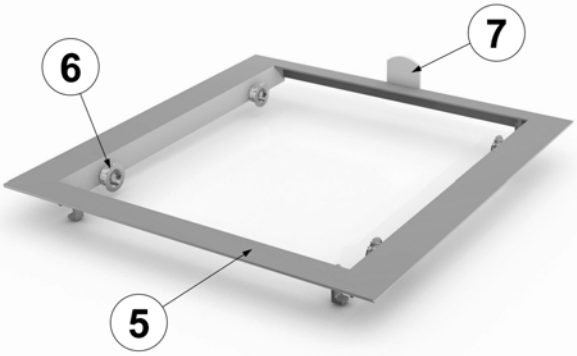
Loading

Track gauge bar

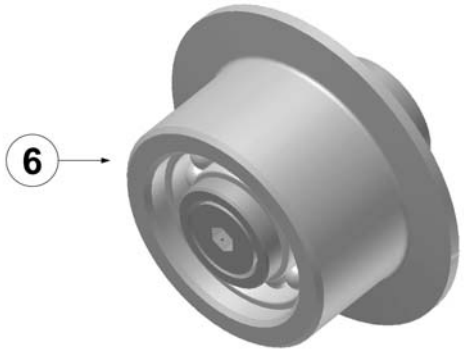
Track insert



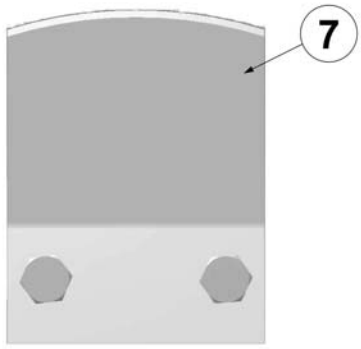
Top cart



Wheel

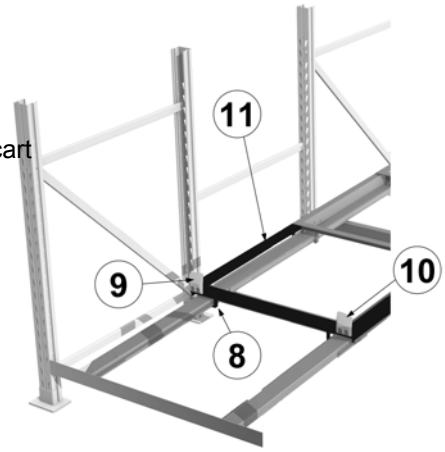


Pallet guide



Multi-purpose push plates

Bottom cart



Spare parts list

Before placing your order, have Interroll confirm the reference numbers by providing us with the machine number indicated on the rating plate.

Recommended inventory status:

A = Keep in stock, B = Recommended stock, C = Optional stock

Machine no.

No.	Name	Reference	Quantity	Inventory status
(1)	Right-hand track			C
(2)	Left-hand track			C
(3)	Track gauge bar			C
(4)	Track insert			C
(5)	Top cart			C
(6)	Wheel	A06060766		A
(7)	Pallet guide	A09051961		C
(8)	Lift-out protector			C
(9)	Right-hand multi-purpose push plate	Long (5 and 6 pallet places): A09073161-3D Short (2 to 4 pallet places): A09091762-3D		C
(10)	Left-hand multi-purpose push plate	Long (5 and 6 pallet places): A09073163-3D Short (2 to 4 pallet places): A09091761-3D		C
(11)	Bottom cart			C

These components should be replaced exclusively by qualified maintenance personnel.

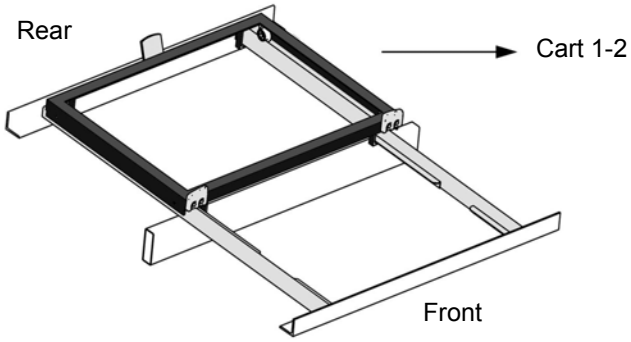
This table provides an indication of requirements for most users. Each user should determine the stock levels required according to their actual usage.

Replacing the tracks and carts

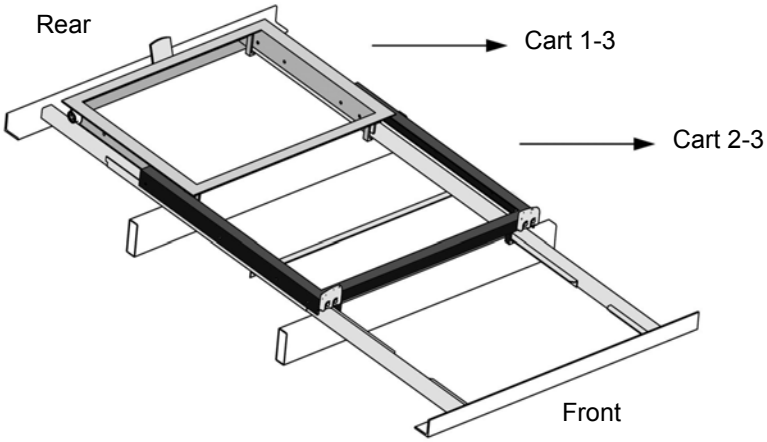
When replacing a track or cart, refer to the table below and inform Interroll of the part number. Also specify the type of pallet used (e.g., Euro pallet, GKN CHEP longway, GKN CHEP crossway, or other) and the order number.

For all other technical configurations that are different from the configuration specified in the manual, contact Interroll with the order number or the drawing supplied with the delivery.

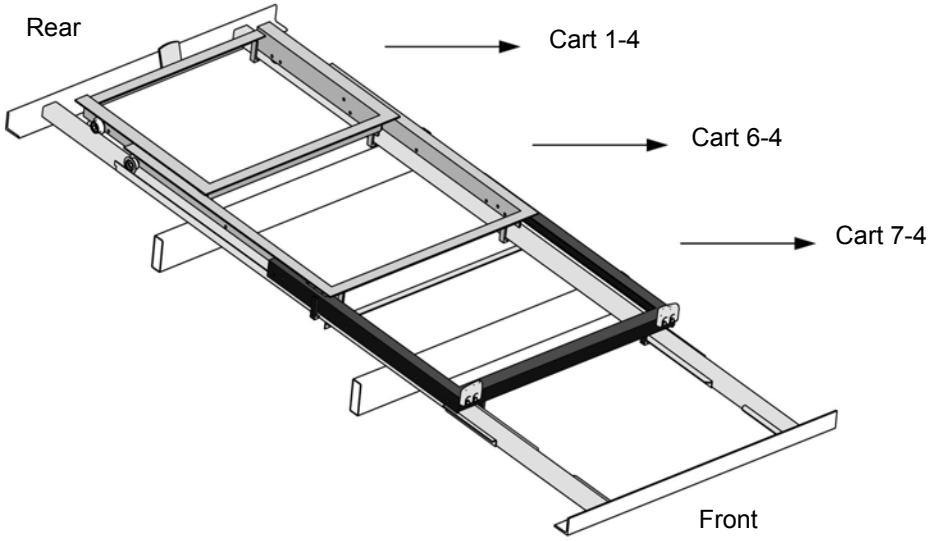
Lane for 2 pallet places



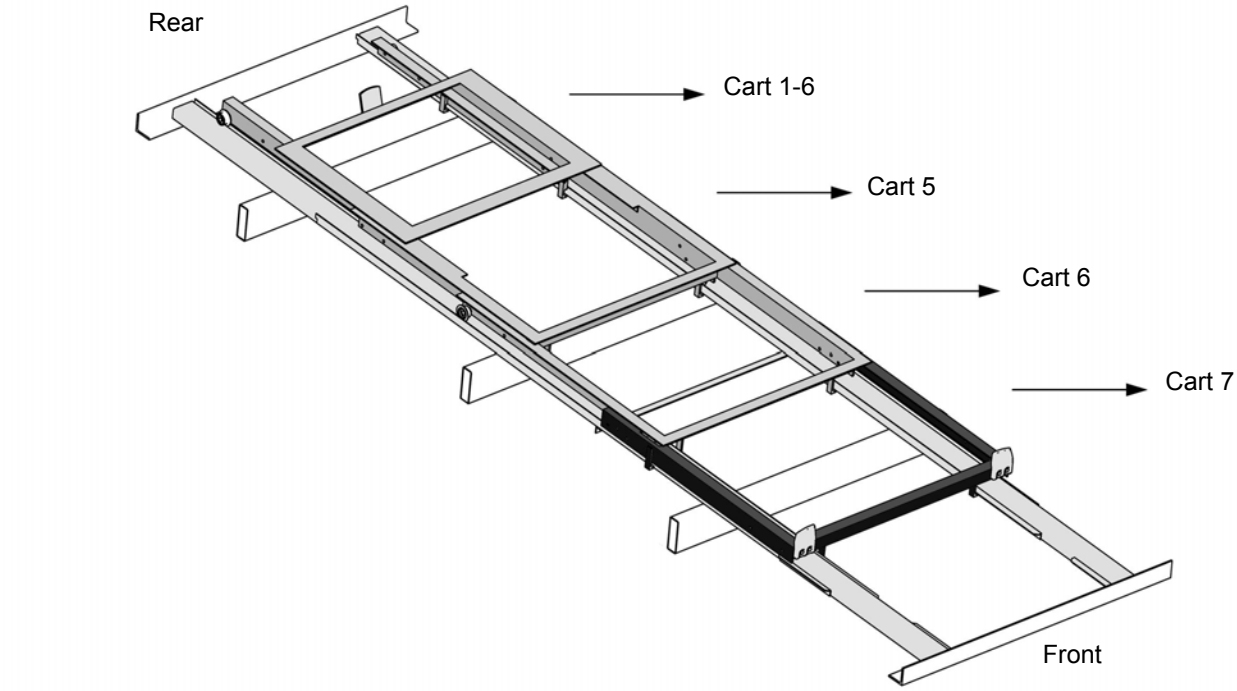
Lane for 3 pallet places



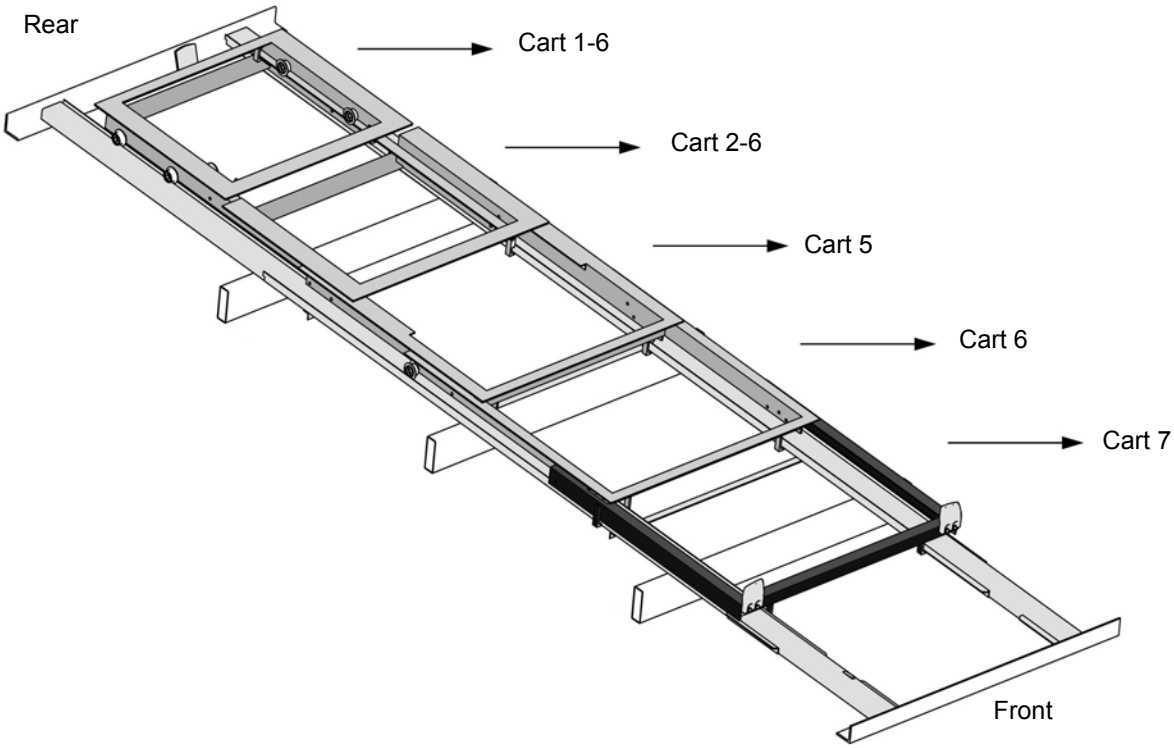
Lane for 4 pallet places



Lane for
5 pallet places



Lane for
6 pallet places



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